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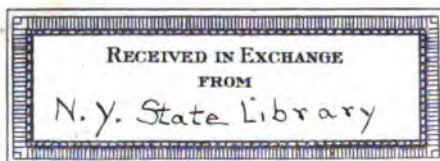
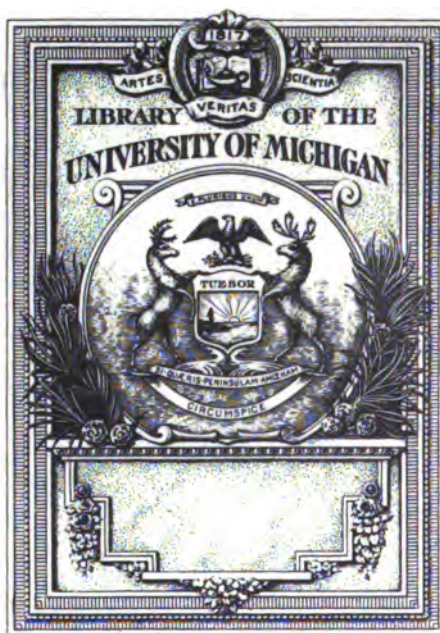
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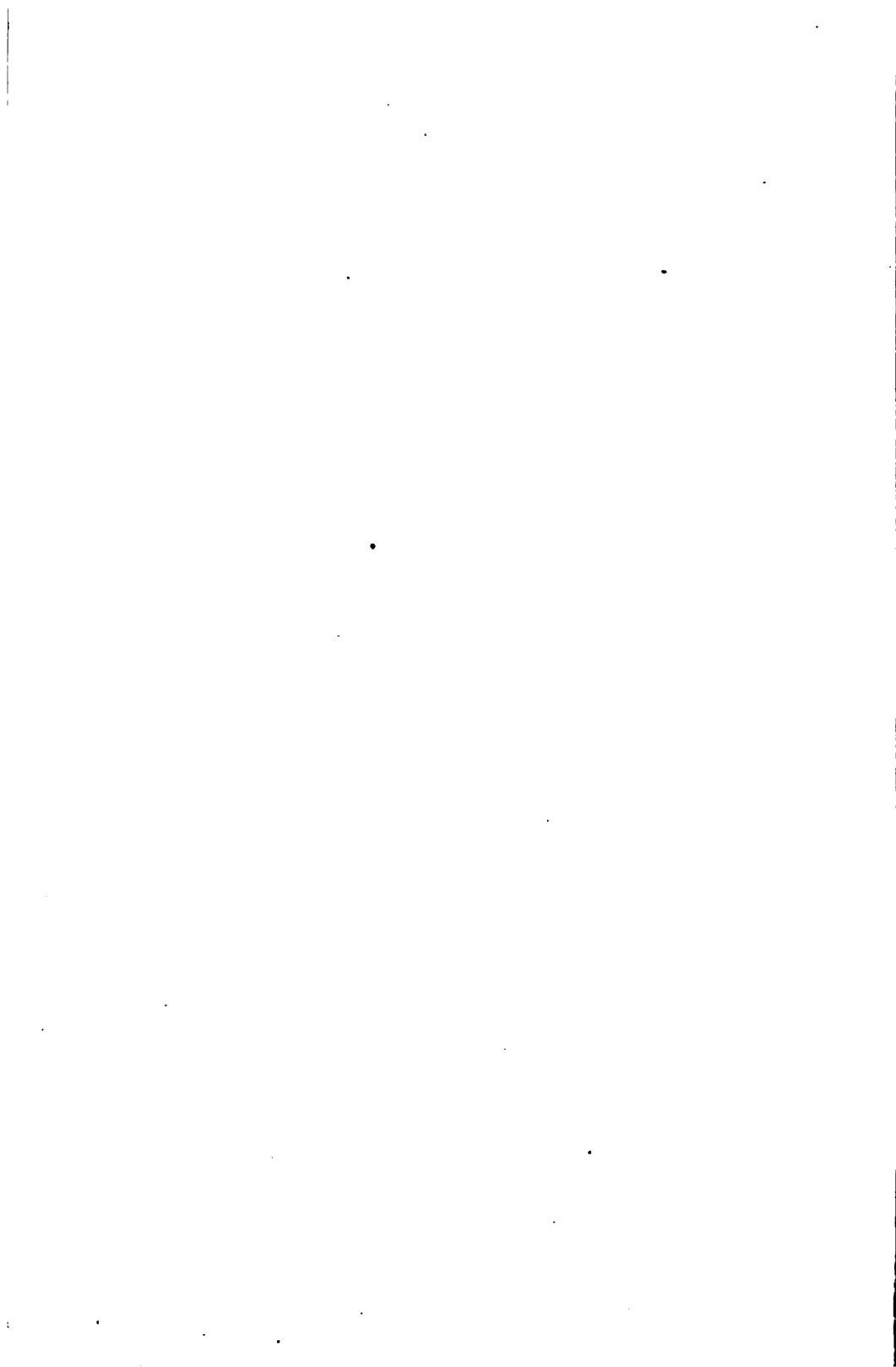
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New York Legislature, Senate.

DOCUMENTS

OF THE

SENATE

OF THE

STATE OF NEW YORK

ONE HUNDRED AND THIRTY-EIGHTH SESSION

1915

VOL. XI.—No. 21—PART 2



ALBANY
J. B. LYON COMPANY, PRINTERS
1915

STATE OF NEW YORK

DEPARTMENT OF AGRICULTURE

TWENTY-SECOND ANNUAL REPORT

OF THE

Department of Agriculture

For the Year Ending September 30, 1914

PART II

TRANSMITTED TO THE LEGISLATURE JANUARY 15, 1915

ALBANY
J. B. LYON COMPANY, PRINTERS
1915

STATE OF NEW YORK

No. 21

IN SENATE,

JANUARY 15, 1915

TWENTY-SECOND ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

PART II

To the Honorable the Legislature of the State of New York:

Pursuant to the provisions of the Agricultural Law, I herewith submit this, Part II of the Twenty-second Annual Report of the Department of Agriculture of the State of New York, for the year ending September 30, 1914.

CALVIN J. HUSON,
Commissioner of Agriculture

January 15, 1915.

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STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

GALVIN J. HUSON, Commissioner

Bulletin 52

The Inspection, Certification and
Transportation of
NURSERY STOCK
In New York State, Other States and Canada

(Corrected September, 1913)

1913

Prepared by
GEORGE G. ATWOOD
Chief, Bureau of Horticulture and Nursery Inspection

INSPECTION, CERTIFICATION AND TRANSPORTATION OF NURSERY STOCK

INTRODUCTION

This bulletin gives a brief synopsis of the laws and regulations of the United States, the several States and Canada relative to the inspection, certification and transportation of nursery stock.

Special attention of transportation companies, importers, custom house brokers, dealers and nurserymen is called to sections 304 and 305 of the Agricultural Law and to the following orders of the Commissioner of Agriculture. No person in the State of New York should handle or ship nursery stock until he becomes familiar with the provisions of the law relative thereto.

ORDERS

ALBANY, N. Y., *September 1, 1913.*

To whom It May Concern:

By virtue of authority conferred on me by section 305 of the Agricultural Law, I, Calvin J. Huson, Commissioner of Agriculture, hereby issue the following orders:

TO TRANSPORTATION COMPANIES AND THEIR AGENTS

All nursery stock shipped from any point in the State of New York must have attached to each car, box, bale or package a copy of a certificate of inspection issued by the State Department of Agriculture, signed by the Commissioner of Agriculture and valid to September 1, 1914.

All transportation companies bringing nursery stock into this State shall immediately notify the Commissioner of Agriculture of the fact that such stock is in their possession or is en route to some point within the State, and give name of consignor and consignee and the points of shipment and destination of each con-

signment, and shall also make such further report relative to shipments as the Commissioner of Agriculture may from time to time require.

(Sample forms of notices will be sent on application.)

TO IMPORTERS OF NURSERY STOCK AND CUSTOM HOUSE BROKERS

All custom house brokers, bringing into or causing to be brought into this State any nursery stock shall file with the Commissioner of Agriculture, on or before October first each year, the name of the person, firm, association or corporation engaged in or intending to engage in such business, together with the business address of such person, firm, association or corporation.

Custom house brokers importing or bringing nursery stock into the State shall immediately, upon receiving consignments, notify the Commissioner of Agriculture of the fact that such consignments are in their possession or en route to some point within the State and give the name and address of the consignor and consignee and the destination of each shipment and the name of the transportation company bringing such stock and the route over which it is brought, and shall also make such further report relative to shipments as the Commissioner of Agriculture may from time to time require.

(Blanks will be furnished for this purpose.)

TO DEALERS IN NURSERY STOCK

All dealers in nursery stock must, if they have no growing nursery stock in this State file with the Commissioner of Agriculture their name and address, together with a list of all persons, firms or corporations of whom they buy nursery stock. No stock shall be sold, shipped or delivered unless accompanied by a copy of a certificate signed by the Commissioner of Agriculture or his authorized representative, indicating freedom from insect pests and fungous diseases. When all such stock is collected an inspection will be made and proper certificates provided by this Department to permit shipping.

TO NURSEYMEN

All growing nursery stock in the State will be inspected annually or oftener if necessary; if found free from injurious insects or fungous disease there will be issued to the owner a certificate of inspection, which certificate will expire September 1, 1914.

Every car, box, bundle or package must have attached an exact copy (including date of issue and date of expiration) of said certificate before shipment or delivery.

All nursery stock found growing within one-half mile of areas infested with San José scale must be properly fumigated as required by the regulations of this Department before shipment or delivery.

No nursery stock received from points within the State of New York shall be sold or delivered unless it bears a valid certificate of inspection on arrival.

Any nursery stock brought into the State must remain packed and unopened until permission is given by the Commissioner of Agriculture or his duly authorized representative. To facilitate rapid inspection, receivers of nursery stock should notify the Department office at Albany or an authorized inspector of the receipt or expected receipt of consignments, giving the name and address of consignor and dates.

No nursery stock shall be shipped or delivered unless there is positive evidence that it has been inspected and certified by authority of the Commissioner of Agriculture.

(Signed) CALVIN J. HUSON,
Commissioner of Agriculture.

September 1, 1913.

INFORMATION

The State is divided into districts and the nurseries are under the constant care of inspectors of the Department. During the shipping season it is the duty of the Department to cause an inspection of all nursery stock received from points outside the State. All trees infested with San José scale or other injurious insects, and all trees and plants infected with fungous diseases, crown gall or galls on the roots must be destroyed or returned to shippers.

The Commissioner of Agriculture exempts from fumigation all herbaceous plants, conifers, greenhouse plants, flowers and cuttings, but this does not refer to stock that may distribute injurious pests or disease. Certificates issued by this Department will be valid until September 1, 1914. No certificate will be granted on a final inspection made earlier than August 1, 1913, and the most important inspection work will be done after August 1 and continue throughout the year wherever it is found necessary.

Vineyardists who make a business of selling cuttings and small fruit growers who do no general nursery business will receive a special certificate of inspection. Transportation companies class cuttings as nursery stock and require copies of inspection certificates.

Duplicate certificates of inspection will be furnished by the Department for filing in the offices of the States requiring them, as follows:

Alabama, Arkansas, Florida, Georgia, Illinois, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, North Carolina, North Dakota, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin and Wyoming.

To avoid delay and possible loss of stock, no nurseryman should ship to another State, without first having learned the requirements of that State.

All persons who intend to import trees or plants from any foreign country should first apply for and receive a permit from the Federal Horticultural Board, U. S. Department of Agriculture, Washington, D. C.

(Nurserymen can have name and address placed on a mailing list to receive the federal regulations.)

The following is a brief summary of the laws and regulations of the several States and Canada, governing the inspection, certification and transportation of nursery stock.

For fuller information correspondents are referred to the officials who have charge of the work in the several States.

ALABAMA.—A signed copy of the inspection certificate issued to the applicant must be filed with the State Horticulturist and money sent to pay for the license and tags needed. A tag must

be placed on each order delivered. One tag on box does not cover individual orders therein. No one is allowed to receive a package of nursery stock unless a tag is attached.

Every nursery or nurseries, dealer or dealers in Alabama and all outside of State nursery or nurseries doing business in Alabama shall be required to take out a license before a certificate of inspection is granted. The license shall be of two kinds: one regular nurseryman and dealer's license and an agent's license, the agent's license to be obtained only through the principal, who must hold a regular nurseryman's or dealer's license. The license fee for each nurseryman's or dealer's license shall be \$10. The fee for each agent's license shall be \$1. All license fees to be paid before the license is granted. This rule to take effect on July 15, 1913.

Address all communications to State Horticulturist, Auburn, Alabama.

ARIZONA.—Dr. A. W. Morrill, State Entomologist of Arizona, Arizona Commission of Agriculture and Horticulture, Phoenix, Arizona.

ARKANSAS.—Shipments of nursery stock into the State must be accompanied by a copy of the valid certificate of inspection, a copy of the valid permit issued to the nurseryman by the State Entomologist of this State and must bear the name and address of the consignor and consignee with a statement of the contents of the shipment; all shipments not so labeled or tagged must be refused for shipment by the carrier. Carriers bringing into the State shipments of nursery stock which originated in foreign countries or foreign possessions of the United States must notify the State Entomologist in writing and must hold such stock at any place designated by him until the same has been duly inspected and released.

Nurserymen located out of the State may secure permits by filing with the State Entomologist a copy of their certificate. Geo. G. Becker, Acting State Entomologist, Fayetteville, Ark.

CALIFORNIA.—Shipments of nursery stock into California are held by the transportation companies until inspected by State quarantine guardians. All packages must be marked with the name and address of the shipper, name of the consignor and name of the place where the stock is grown. All nursery stock infested

with pests not existing in California will be immediately sent out of the State or destroyed at the option of the owner and at his expense. Peach, apricot and almond trees coming from districts where yellow and rosette are known to exist shall be refused entry and shall be destroyed or returned to the shipper. Notices of shipment of nursery stock to California should be sent to the horticultural quarantine officer, Room 11, Ferry Building, San Francisco, Cal., and to the State quarantine guardians at the point of destination. Frederick Maskew, Chief Deputy Quarantine Officer, Room 11, Ferry Building, San Francisco, Cal.

COLORADO.—The State entomologist has general supervision of the inspection of nurseries and orchards to prevent the introduction and spread of injurious insects and plant diseases. County horticultural inspectors in fruit-growing counties of the State are appointed by the county commissioners. All nursery stock coming into the State must bear certificates of inspection and fumigation and on arrival in counties that have inspectors is turned over to them and released to consignee if it passes inspection. C. P. Gillette, State Entomologist, Fort Collins, Colo.

CONNECTICUT.—“All nursery stock shipped into this State shall bear on each package a certificate that the contents of said package have been inspected by a State or government officer and that said contents appear free from all dangerous insects and diseases. If nursery stock is brought into the State without such a certificate, the express, freight, or other transportation company or person shall, before delivering shipment to consignee, notify the State Entomologist of the facts, giving name and address of consignee, origin of shipment, and approximate number of cars, boxes, or packages, and probable date of the delivery to the consignee. The State Entomologist may cause the inspection and if infested the treatment of the stock. No person, firm, or corporation shall unpack any woody field-grown nursery or florists' stock brought into this State from foreign countries except in the presence of an inspector, unless given permission to do so by said State Entomologist or one of his deputies. If such stock is found infested with any dangerous pests the State Entomologist may at his discretion order it treated. Any person violating any of the provisions of this act shall be fined not more than \$50.” Dr. W. E. Britton, State Entomologist, New Haven, Conn.

DELAWARE.—Shipments of nursery stock into the State must bear a certificate of inspection and also a certificate stating that the stock has been properly fumigated. All nursery stock not accompanied by proper certificates may be held by the transportation companies until it can be inspected. Wesley Webb, Secretary, State Board of Agriculture, Dover, Del.

FLORIDA.—All shipments into the State shall have attached to each package a certificate stating that the contents have been stripped of foliage and fumigated as per rules and regulations. All persons selling nursery stock without the State shall pay a fee of \$5 per annum and register with the inspector of nursery stock, file a certificate of inspection and receive permission to sell nursery stock in the State. It is declared unlawful to knowingly sell or transport any infested or infected nursery stock in the State. Rules and regulations may be obtained by addressing E. W. Berger, Inspector of Nursery Stock, Gainesville, Fla.

GEORGIA.—Nurseries are inspected annually. A signed duplicate of inspection certificate, together with a statement by the nurserymen that all stock intended for Georgia will be fumigated in accordance with directions furnished them, must be filed in the office of the State Entomologist. Official tags of the Georgia State Board of Entomology will be furnished by the State Entomologist at the following price: One hundred tags, 60 cents, postpaid; 200 tags, 85 cents, postpaid; 300 tags, \$1.10, postpaid; 500 tags, \$1.35, sent by express, collect; 1,000 tags, \$2, sent by express, collect. Each shipment of nursery stock into the State of Georgia must bear the official tag of the Georgia State Board of Entomology and also a duplicate certificate of inspection of the State from which the shipment is made. E. L. Worsham, State Entomologist, Atlanta, Ga.

IDAHO.—No person, firm or corporation shall import or sell nursery stock without first applying to the State Board of Horticultural Inspection and filing a bond in the sum of \$5,000 and securing annual license upon payment of \$10. Shipments into the State should bear a copy of an official certificate of fumigation emanating from the place where the stock was grown. All shipments into the State must bear a label showing the name of the shipper, the locality where grown and variety of nursery stock.

All nursery stock, fruit trees or horticultural plants sold or delivered by principal or agents shall be true to name and variety as represented. All nursery stock shipped into this State, whether bearing certificate of inspection or not, must be inspected again upon its arrival, the consignee paying for such inspection. Every nursery firm doing business in this State must pay annually \$1 additional for each agent who represents them. J. U. McPherson, State Horticultural Inspector, Boise, Idaho.

ILLINOIS.—State nurseries are inspected and certified not later than October 1. An inspection certificate shall be valid for one year from date of inspection. The State Entomologist is authorized to revoke a certificate if he finds it is being used in violation of the law. He is also required to furnish all Illinois nurserymen with a list of State and government inspectors whose certificates may be received as equally valid as his own, and the nurseryman receiving stock under such certificates is authorized to substitute for them the Illinois certificate of inspection. Each dealer in nursery stock who has no nursery of his own and each agent for a nursery located outside of Illinois is required to furnish to the State Entomologist annually a sworn statement, showing that the stock in which he deals has been duly inspected and to submit for approval a copy of the certificate of inspection. Nursery stock shipped into the State must bear a certificate of inspection attached to each car, box, bale, bundle or package. Dr. S. A. Forbes, State Entomologist; P. A. Glenn, Chief Inspector, Urbana, Ill.

INDIANA.—All nurseries are inspected between June 1 and October 1 and at such other times as the head of the inspection department may consider advisable. Stock sent into or within the State must be plainly labeled with the name of the consignor and the consignee and must bear a certificate signed by a State or government official showing that the inclosed stock has been inspected and found free from injurious insects and plant diseases. All foreign-grown stock must be inspected upon arrival at its destination in Indiana. C. H. Baldwin, State Entomologist, Indianapolis, Ind.

IOWA.—State nurseries are inspected at owner's request or if supposed to be infested with dangerously injurious insects or

plant disease, and nurserymen are prohibited from selling or shipping without inspection. Shipments into the State must be accompanied by a certificate of apparent freedom from injurious insects or plant diseases. A copy of inspection certificate must be filed with and approved by the State Entomologist. Prof. H. E. Summers, State Entomologist, Ames, Ia.

KANSAS.—Nurseries are inspected annually between June 15 and November 1. Certificates are valid until the first day of the following June. No nursery stock shall be brought into the State nor offered for sale within the State without having been properly inspected as shown by an accompanying certificate. State Entomological Commission, Topeka, Kan. Prof. Geo. A. Dean, Entomologist, Manhattan, Kan. Prof. S. J. Hunter, Entomologist, Lawrence, Kan.

KENTUCKY.—Nurseries are inspected annually. Every package of nursery stock shipped into the State must have a copy of a certificate of inspection attached and bear on the label a list of the contents. Duplicate certificates of inspection may be filed with the State Entomologist. Prof. H. Garman, State Entomologist, Lexington, Ky.

LOUISIANA.—Nursery inspection is under the control of the State Board of Agriculture and Immigration. The entomologist of the experiment station will have charge of the work, so all communications concerning nursery inspection should be addressed to him.

The regulations of the Board require every box, bundle, bale or package of nursery stock shipped into the State to be plainly labeled with a copy of a valid and unexpired certificate of inspection, and nurserymen shipping stock into this State must file a copy of their certificate with the Board. J. B. Garrett, Entomologist, State Board of Agriculture and Immigration, Baton Rouge, La.

MAINE.—Nurseries within the State are inspected annually. All nursery stock shipped into the State shall bear on each box or package a certificate that the contents have been inspected. The State Horticulturist has power to inspect all stock shipped into the State at point of destination, whether under certificate or not, and if found infested with any injurious insects or plant diseases

he shall cause it to be destroyed or returned to the consignor. Agents or other parties, excepting growers, who sell or deal in nursery stock, or solicit purchases of nursery stock, shall make application for an agent's license and shall file with the State Horticulturist name and location of nursery and place of business of the nurserymen or tree dealers whom they represent or from whom they purchase their stock. Such application shall be accompanied by a fee of \$5. A. K. Gardner, State Horticulturist, Augusta, Maine.

MARYLAND.—Nurseries are inspected at least once in six months. All nursery stock subject to attack of insect pests must be fumigated. Shipments into the State must be labeled with the name of consignor and consignee and each package bear a certificate of inspection. Duplicate certificates should be filed with the State Entomologist. Dr. T. B. Symons, State Entomologist, Prof. J. B. S. Norton, State Pathologist, College Park, Md.

MASSACHUSETTS.—Nurseries in the State are inspected annually. Agents or other persons, excepting growers who desire to sell nursery stock in the State, shall make application to and receive from the State Nursery Inspector an agent's license, and shall file with the State Nursery Inspector names and addresses of all persons or nurseries from whom they purchase stock. It shall be unlawful for any person, firm or corporation to sell, deliver or ship within the State any nursery stock unless such person, firm or corporation holds a grower's certificate or an agent's license, and a copy of such certificate or license must accompany each car, box or package delivered or shipped.

The State Nursery Inspector shall have power to inspect at its point of destination all nursery stock coming into the State, and should such stock be found to be infested with injurious insects or plant diseases he may cause it to be destroyed, or treated or returned to the consignor at the consignor's expense. Dr. H. T. Fernald, State Nursery Inspector, Amherst, Mass.

MICHIGAN.—Nurseries are subject to inspection; infested trees must be destroyed and the remainder of the stock within a half mile must be fumigated. Shipments into the State must bear on every package, plainly labeled, the name of the consignor and consignee, statement of contents and a certificate showing

that the contents have been inspected by a State or Government officer, and if of species subject to the attack of San José scale must be fumigated with hydrocyanic acid gas. Certificates of fumigation must also be attached, together with a certificate of inspection. This applies to individual orders when several are contained in the same shipment. All nurserymen, whether residents of Michigan or other States, who wish to grow or sell stock within the State must apply to the State inspector of nurseries on or before August 1 of each year for a license, for which the fee is \$5.00. A bond for \$1,000 must also be filed. Certificates of inspection must be filed with the State inspector of nurseries before any stock is shipped into the State. Prof. L. R. Taft, State Inspector of Nurseries, East Lansing, Mich.

MINNESOTA.—Inspection, annual compulsory. Inspection may be oftener if it seems desirable.

Shipments into the State must be accompanied by a certificate of inspection.

Carrying companies accepting stock not so tagged are responsible and liable to prosecution.

Dealers in other States sending stock into Minnesota for sale must file a copy of their certificates with the State Entomologist. Professor F. S. Washburn, State Entomologist, St. Anthony Park, Minn.

MISSISSIPPI.—Every nursery in the State must be inspected before November 1 of each year, and every bundle, bale or package of stock sold or transported must be accompanied by a copy of the certificate of inspection attached in a conspicuous place. Every person or firm from other States wishing to ship nursery stock into Mississippi must file with the entomologist a copy of their certificate which shall state that the nursery is properly equipped for fumigating all nursery stock. A copy of the certificate shall be attached to every bundle, bale or package of nursery stock delivered within the State. Every nurseryman must state that all nursery stock shipped into this State will be fumigated with hydrocyanic acid gas. R. W. Harned, Entomologist, Agricultural College, Miss.

MISSOURI.—Nurseries are inspected annually. Each nursery outside of Missouri shipping stock into Missouri must apply at

the office of the Chief Inspector for a permit which will be issued upon filing the necessary papers and copy of their nursery inspection certificate. No fee is charged for the permit. All agents or salesmen for outside nurseries must apply for an agent's permit. Every package of nursery stock shipped into the State must be clearly labeled with the name of the consignor, consignee, statement of contents and a certificate showing that the stock therein contained has been inspected where grown by a duly authorized inspector and found to be apparently free from dangerously injurious insect pests and plant diseases. Transportation companies are not permitted to deliver nursery stock unless so labeled. Leonard Haseman, Entomologist and Chief Inspector, University of Missouri, Columbia, Mo.

MONTANA.—All stock brought into the State must be unpacked, inspected and fumigated if necessary at one of the designated quarantine stations, viz.: Glendive, Miles City, Billings, Bozeman, Lewistown, Helena, Great Falls, Missoula, Victor, Como, Darby, Plains, Mondak, Glasgow. Havre, Kalispell, and Eureka. Nursery stock may be inspected and fumigated at other points of delivery on payment of all costs. To sell or deliver nursery stock it is necessary to first obtain a license by paying a fee of \$25 and by filing with the State Horticulturist a bond in the sum of \$1,000 annually. All correspondence and notice of shipment, including an invoice of stock, must be sent to M. L. Dean, State Horticulturist, Missoula, Mont.

NEBRASKA.—All nursery stock shipped into the State shall be labeled with the names of consignor and consignee and a certificate showing inspection since July first preceding. Prof. Lawrence Bruner or Prof. Myron H. Swenk, Assistant State Entomologist, University of Nebraska, Lincoln, Neb.

NEVADA.—Nursery stock shipped from other States shall bear on the outside of each car, bale or package a label giving the names of the consignor and consignee, together with a copy of an inspection certificate of recent date. Such certificate of inspection must bear the signature of a qualified person in authority in the State in which such nursery stock was grown. No transportation company shall deliver any nursery stock lacking such official certificate of inspection. J. E. Stubbs, President, State University, Reno, Nev.

NEW HAMPSHIRE.—Nurseries are inspected at least once each year. Shipments into the State must be accompanied by a certificate of inspection or, in lieu thereof, an affidavit showing that the stock has been fumigated with hydrocyanic acid gas, using not less than 2/10 of 1 gram of cyanide of potassium per cubic foot of space, in an air-tight compartment for not less than 40 minutes. A copy of the certificate of inspection or a copy of the affidavit must be attached to each car, box or package shipped into the State. Commissioner of Agriculture, Durham, N. H.

NEW JERSEY.—The law requires the inspection of all nurseries at least once in each year. Shipments into the State must be accompanied by a certificate of inspection, or copy thereof, attached to each car or parcel, together with a statement from the shipper that the stock therein is a part of the stock inspected, and stating whether such stock has been fumigated with hydrocyanic gas or not. It shall be the duty of all carriers to refuse for transportation within the State all stock not accompanied by a certificate of inspection.

All stock coming into the State may be detained for examination, wherever found, by the State Entomologist or the State Plant Pathologist, and if found to be infested with any insects or plant diseases, injurious or liable to become so, will be destroyed. Dr. T. J. Headlee, State Entomologist, New Brunswick, N. J., State Plant Pathologist, New Brunswick, N. J.

NEW MEXICO.—No law relative to transportation of nursery stock. The Territorial Legislature of 1903 provided for county boards of horticultural commissioners which were given authority to control orchard pests. Prof. Fabian Garcia, Horticulturist, Agricultural Experiment Station, State College, N. M.

NEW YORK.—See Pages 3, 4, 5, 6.

NORTH CAROLINA.—Every shipment of nursery stock into this State must be accompanied by a valid copy of a certificate of inspection. Every person, firm or corporation desiring to ship nursery stock into this State must file a copy of their certificate with the entomologist. It will be of advantage to the nurserymen if they attach a guarantee of fumigation to the shipment. A copy of regulations will be sent on application. Franklin Sherman, Jr., Entomologist State Department of Agriculture, Raleigh, N. C.

NORTH DAKOTA.—The director of the Experiment Station is authorized to cause inspection and prescribe treatment of diseased nursery stock. Shipments into the State must bear a certificate of inspection. Every person who employs agents or salesmen or who solicits for the sale of nursery stock must obtain a license upon the payment of \$10 and upon filing a certificate of inspection and a \$500 bond. Said license will permit holder to do business in the State for one year. Director North Dakota Experiment Station, Agricultural College, N. D.

OHIO.—Shipments of nursery stock entering the State must bear the name of the consignor and consignee and be accompanied by an official certificate of inspection or fumigation. Agents are required to pay a license fee of \$1 and dealers a license fee of \$5, also to file sworn statements that the stock which they sell or deliver has been officially inspected and was received by them accompanied with a valid certificate of inspection or fumigation. N. E. Shaw, Chief Inspector, Ohio Department of Agriculture, Columbus, O.

OKLAHOMA.—Nurseries are inspected annually. No nursery stock shall be brought into the State without having been previously properly inspected as shown by an accompanying certificate. Benjamin Hennessy, Secretary, State Entomological Commission, Oklahoma City, Okla.

OREGON.—The State Board of Horticulture has charge of inspection within the State. All nursery stock brought into the State must be inspected at station of delivery before delivery to consignee. If found infected or infested, nursery stock must be returned to consignor or destroyed. Peach pits, peach trees and scions and other trees on peach roots grown in or coming from districts where peach yellows, little peach or peach rosette or either of are known to exist are prohibited entry. Every carload and case containing nursery stock, trees, plants, etc., must have plainly marked thereon in a conspicuous manner and place the name and address of consignor; name and address of consignee; name of country, State or Territory where contents were grown and must show that it contains nursery stock, seedlings or seeds. Address State Board of Horticulture. Portland, Oregon.

PENNSYLVANIA.—Nurseries must be inspected at least once a year, and no nurseryman, agent, dealer or broker can legally sell

or ship stock without a certificate of inspection. Certificates of fumigation are required to accompany shipments from other States, and the word "fumigated" printed or stencilled on or accompanying the certificate of inspection will not be accepted unless it is apparent that such word is a part of the certificate granted by a State inspection officer.

Nurseymen from other States are required to file affidavits that all nursery stock of kinds subject to infestation by San José scale will be properly fumigated before shipment into the State. Blanks furnished upon application. Dealers in nursery stock are granted certificates upon application and the filing of a statement that they will buy nursery stock only from nurserymen or growers holding valid certificates of inspection.

Transportation companies are required to reject all stock entering the State unless certificates of inspection and fumigation are attached. Prof. H. A. Surface, Economic Zoologist; Enos B. Engle, Chief Nursery Inspector, Harrisburg, Pa.

RHODE ISLAND.—The Inspection Law has been revised during the past year and now provides that the State Board of Agriculture shall appoint a State Entomologist whose duties it shall be to inspect nurseries and orchards and to grant an annual certificate for sale of nursery stock. All nursery stock shipped into the State must bear on each package a certificate that the contents have been inspected by an authorised inspection officer. The State Entomologist is, furthermore, authorized to inspect any nursery stock which comes into the State, even when sent in under an official certificate, if he deems it advisable, and shall order its return to the consignor if any injurious insects or plant diseases are found therein.

An affidavit of fumigation is no longer accepted in lieu of official inspection.

Agents who have no nursery, and who wish to sell nursery stock within the State, must apply to the State Entomologist for an agent's license and must state where they propose to purchase their stock to be sold. A. E. Stene, State Entomologist, Kingston, R. I.

SOUTH CAROLINA.—Stock coming from other States, provinces or foreign countries and consigned to points within this

State must have attached to every bundle or package an interstate tag or permit issued by the South Carolina Crop Pest Commission. This interstate tag or permit can be issued only after the certificate of inspection of the State, country or province where shipment originated has been approved by the South Carolina State Crop Pest Commission and filed in the office of the entomologist or pathologist of the said commission. It is further required that the fumigation certificate of the South Carolina State Crop Pest Commission is properly filled out and filed in the office of the entomologist or pathologist of the commission before the interstate tag or permit can be issued, unless the official inspection certificate includes a statement that the nursery is properly equipped for fumigating. Prof. A. F. Conradi, State Entomologist, Prof. H. W. Barre, State Pathologist, Clemson College, S. C.

SOUTH DAKOTA.—All nursey stock shipped into the State must be accompanied by a certificate of inspection issued by the State Entomologist of the State from which it was shipped. Any person, firm or corporation owning a nursey which sells stock to be delivered in this State must certify where the stock was grown and attach this statement to all shipments. Prof. H. C. Severin, State College of Agriculture, Brookings, S. D.

TENNESSEE.—Nurseries are inspected annually or oftener if necessary. Any person, firm or corporation without the State, desiring to do business within the State, shall file with the State entomologist and plant pathologist a copy of his certificate of inspection issued and signed by proper official of his State, as well as an agreement to fumigate properly all stock shipped into the State. Every shipment must be accompanied by a copy of said certificate of inspection and a fumigation tag. Every individual sale or bill of trees shall bear a copy of certificate. Failure to comply with the requirements subject stock to confiscation. Prof. G. M. Bentley, State Entomologist and Plant Pathologist, Knoxville, Tenn.

TEXAS.—Nurseries and greenhouses are inspected annually. All shipments of nursery stock originating outside the State must bear shipping tags showing copy of certificate of inspection from the State inspector of the State in which the shipment originates, but in addition thereto they must have a tag attached showing

copy of permit from Texas. No nursery stock shall be shipped into the State without first filing with the commissioner of agriculture a certified copy of a certificate of inspection from the State inspector of the State in which the shipment originates. A fee of \$5 is required for issuance of permit to ship into the State. Agents or dealers operating in Texas for nurserymen outside of the State must procure proper agents, credentials from their nurseries, on an approved form. Sam. H. Dixon, Chief Inspector, Houston, Tex.

UTAH.—No person shall engage in the business of selling or importing nursery stock without having first obtained a license to do business in the State. Any person may obtain a license from the State Horticultural Commission upon the payment of a fee of \$2.50 annually and by filing with the State Horticultural Commission a bond in the sum of \$500. Each salesman or agent must hold a certificate giving his name and the name and address of the persons he represents, together with the license number of his principal. A copy of the certificate of inspection must be attached to each shipment. All nursery stock will be quarantined on arrival and, if deemed necessary, disinfected or destroyed at the cost of the owner. J. Edward Taylor, State Horticultural Inspector, Salt Lake City, Utah.

VERMONT.—Nurseries are inspected annually. Nursery stock shipped into the State shall be accompanied by a certificate of inspection and the name and post-office address of the consignor and consignee. M. B. Cummings, State Nursery Inspector, Burlington, Vt.

VIRGINIA.—Before selling nursery stock, it is necessary to procure from the auditor of public accounts, Richmond, Virginia, a certificate of registration for which the fee is \$20 for principals, duplicates for agents' use free. Send certified check or draft for \$20 drawn or indorsed payable to the Treasurer of Virginia. (Personal checks will not be accepted.) Duplicate of certificate of nursery inspection must be filed with the State Entomologist, who will furnish tags at cost, and one tag must be attached to each package of stock to be sold in the State. W. J. Price, Acting State Entomologist, Blacksburg, Va.

WASHINGTON.—No person, firm or corporation shall engage or continue in the business of selling as agent, solicitor or otherwise within the State or importing nursery stock without first having obtained a license. Nursery license fee is \$5 per year; nursery agent's license fee is \$1 per year; nursery bond is \$1,000 to be renewed annually. Every person, firm or corporation licensed to do business in this State must notify the Commissioner of Agriculture of his intention to ship nursery stock giving the names and addresses of the persons, firms or corporations to whom the shipments are made. A copy of the notice shall also be sent the Inspector of the district in which the point of destination is located. For full information address F. A. Huntley, Commissioner Horticulture, Olympia, Wash.

WEST VIRGINIA.—The State Crop Pest Commission has power to provide quarantine regulations concerning the transportation and sale of nursery stock. No person or corporation either for himself or as agent for another shall offer for sale, sell or deliver nursery stock unless he shall have first procured from the State Auditor a certificate of registration, the annual fee for which is \$5. All nursery stock entering the State must be accompanied by a certificate of inspection and also by an official permit tag obtained from the State Entomologist. Duplicate certificates of inspection should be filed. W. E. Rumsey, State Entomologist, Morgantown, W. Va.

WISCONSIN.—All persons, firms or corporations shipping nursery stock into the State are required to file a duplicate certificate of inspection, and secure a State license at the cost of \$5, if selling at retail or through agents. Each shipment must bear certificate tags which shall be attached to each package, box or car-load lot. Transportation companies are forbidden to deliver nursery stock unless accompanied by valid certificate tags. All agents selling nursery stock within the State must be supplied with an agent's duplicate license at the cost of \$1 which shall bear the same number and date as that of the principal. Wilful misrepresentation of quality or variety of stock offered for sale shall constitute a punishable misdemeanor. Professor J. G. Sanders, Entomologist and Chief Nursery Inspector, College of Agriculture, Madison, Wis.

WYOMING.—Any person or firm wishing to do business in this State must first obtain a license. Licenses are issued on application for a period terminating on July 1 of the next succeeding inspection year (approximately two years). All applications must be accompanied by the license fee of \$25, a bond in the sum of \$500, conditioned that the principal will faithfully obey the law of the State, and by a certified certificate of inspection from an authorized inspector in the State from which shipments are to be made. On receipt of these the secretary of the State Board issues authorized shipping tags at cost. Nursery stock may not enter the State and transportation companies may not deliver unless such tag be attached to each and every box, bundle or bale. Before making shipments secure copy of the law from the secretary of the State Board of Horticulture, Professor Aven Nelson, Laramie, Wyoming.

CANADA.—No nursery stock shall be imported that is infested with any of the following insect pests or diseases: San José scale, brown-tail moth, gypsy moth, woolly aphis, West India peach scale, potato canker, gooseberry mildew, internal and external parasitic diseases of potatoe, branch canker and blister rust of white pine. Nursery stock shall be imported only through the ports and during the periods mentioned: Vancouver, B. C., from October 1 to May 1; Niagara Falls, Ont., from October 1 to May 15; Winnipeg, Man., and St. John, N. B., from March 15 to May 15, and from October 7 to December 7; Windsor, Ont., and St. Johns, Que., from March 15 to May 15, and from September 26 to December 7.

Importations by mail shall be subjected to the same regulations. The port by which it is intended that the nursery stock shall enter shall be clearly stated on each package and notice of shipment must be sent to the Dominion Entomologist, Ottawa. European nursery stock and certain other classes of vegetation may in the case of certain ports be allowed to proceed and shall be inspected at point of destination, but must not be unpacked except in the presence of the inspector. Copies of the regulations governing the importation of nursery stock into Canada may be obtained from Dr. C. Gordon Hewitt, Dominion Entomologist, Ottawa, Canada, to whom all inquiries should be addressed.

(Regulations for shipment of nursery stock into Canada are to be revised about October 1, 1913.)





ONE OF THE MANY FERTILE VALLEYS IN NEW YORK STATE.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 53

Agricultural Advantages
of New York



NEW YORK ABOUNDS IN STREAMS OF CLEAR, PURE WATER.

AGRICULTURAL ADVANTAGES OF NEW YORK

FOREWORD

MANY misleading statements concerning the agricultural conditions in New York State have been circulated from time to time. It is the purpose of this bulletin to correct those erroneous ideas and give to the people of this State, as well as of other States, a view of the situation as it really exists.

In presenting the claims of New York to those who are seeking farm homes, we recognize that it is a new thing for an eastern State to claim superiority over her western sisters along agricultural lines. For years the opinion has prevailed that New York State is chiefly a great center of commercial activity and wealth. The west has looked upon this State principally from the standpoint of New York's ability to finance her great development schemes. The fact that New York is the leading State of the Union in the power of her commercial and industrial enterprises has largely overshadowed the truth that she is still and always will be the Empire State in the variety and special value of her agricultural products.

New York possesses in one section or another the chief agricultural attractions of other States, to which are added her unexcelled markets, her great transportation systems, her exceptional educational facilities and a State agricultural law protecting farmers against frauds of almost all kinds.

It has long been said that "distance lends enchantment;" there is, perhaps, no other explanation for the fact that clever men can come into our State and sell to our farmers for three hundred to five hundred dollars an acre land in the far west or the far south, without improvements, without neighbors, without schools, without churches, without markets, without those things that men most want and immediately set about to procure when they establish themselves in the lonely places. All these advantages are everywhere in New York, within easy reach of many farms that may be procured for from twenty-five to one hundred dollars an acre and which will produce as large crops as the land in the west, now covered by sage brush, or in the south, now covered by tangled weeds, and for sale at double the cost of the New York land.



NEW YORK IS THE LEADING HAY PRODUCING STATE

AGRICULTURAL NEW YORK

Area. Although there are more acres in many of the western States than in New York, as Dean Bailey has well said, "it is the size of an acre of land that controls in the end, and the value of produce per acre is greater in the eastern States than in the western States."

Climate. The climate of New York is generally healthful and invigorating. Blizzards, cyclones, destructive winds and devastating storms are scarcely known. The rainfall averages about thirty-six inches per annum.

Topography. New York is noted for its peculiar topography, consisting of hills and valleys, mountains and plateaus, with the Atlantic Ocean and Long Island Sound at the south, two of the great lakes at the north and west, three important rivers and a score of inland lakes of considerable size and great beauty. This diversity of the surface features makes the State remarkable for its beautiful scenery. The slopes are of such a character that the country is naturally well drained. Clear, pure water is found in abundance throughout the State.

Population. New York State surpasses all the other States of the Union in its population, which is over nine millions. Of this vast population, the number of people residing in cities and employed in industrial plants and on construction enterprises is out of all proportion to the number engaged in agriculture. Fifty-two per cent. of New York State's population reside within the limits of Greater New York. Seventy-eight per cent. of the population of the State live in cities of twenty-five thousand and over and only twenty-two per cent. live on farms, in villages and in cities with a population less than twenty-five thousand. Here is a great opportunity for the New York farmer, a market at his door that should inspire him with confidence and a determination to meet the demand with the best products that can be raised on a thoroughly cultivated soil.

Farm Area and Value. The last census gave New York 215,597 farms. The average size of a farm is a little over one hundred acres. This gives New York 22,030,367 acres of land now in farms. The total valuation, including buildings, fences and improvements, is given in the census of 1910 as \$1,451,481,495, an increase in valuation since 1900 of 35.7 per cent.



VEGETABLES AND FRUIT — A PROFITABLE COMBINATION



PIGS GIVE A GOOD ACCOUNT OF THEMSELVES ON NEW YORK FARMS

Markets. The fact that the State has long since passed her speculative or uncertain era of development should count for a great deal in the advantages New York offers to home-seekers. The centers of population are fixed with certainty. A man who locates a farm near a market to-day can confidently trust, not only in the permanency of his market, but in the certainty of its increasing demand for his products. Farms lying back on our mountain sides and among the hills, comparatively remote, are now in daily touch with cash markets for a fairly wide range of products. This is partly due to the annual influx of hundreds of thousands of city people into the hill, mountain, lake and river regions.



HIGH CLASS POULTRY MAY BE FOUND ON NEARLY EVERY NEW YORK STATE FARM

All over the State everything that is fresh from the dairy, garden, greenhouse, field, pasture, vineyard, orchard, poultry-yard and berry patch is sought for. So great is the demand for everything that can be produced on the farm, that, in many cases, buyers are seeking the farmer, and produce is sold at the farm. Beside this demand, a large number of canning plants scattered throughout the State are demanding thousands of tons of peas, sweet corn, beans, tomatoes and fruits, while the apple region is well supplied with evaporating plants.

There appears no reason why New York farmers cannot be first in supplying this demand, because of short shipments



FRUIT, POULTRY AND BEES

and quick deliveries. Cold storage and refrigerating cars coming from a distance cannot deliver goods that will compete with those fresh with the dew and crisp with life, straight from the field of the New York farmer. New York City alone, with its approximately five million consumers and with its perpetual stream of tens of thousands of visitors from every part of the world, would take manyfold more farm products than are now produced in the State.

Transportation. The lines of transportation, trunk lines and branch lines of railroads, trolley lines, waterways and State roads thread the State like a network, while the Erie Canal, now being reconstructed, furnishes a means of extremely cheap transportation to the numerous cities and towns on its banks. It is difficult to find a farm that is not within a short driving or easy shipping distance of some important market. One-third the entire population of the United States is within one night's shipment by express and thirty-six hours by freight of the farms of the State.

Soils and Production. The soil of New York State is chiefly of glacial origin, which class of soil is noted the world over for its long-continued productiveness under fair treatment. Like all classes of soils the glacial soil may be injured by injudicious management, but it can be restored to prime condition at less expense and labor than can most soils. The prevailing types of soil in the State are loam and clay loam, with lighter soil in many of the valleys.



CANNING FACTORIES FURNISH A HOME MARKET FOR VEGETABLES AND FRUITS



SCENE ON A NEW YORK STATE DUCK FARM



NEW YORK STATE LEADS IN DAIRY CATTLE

To some extent, the areas which are characterized by the production of certain crops or agricultural industries possess



A WELL-TILLED ORCHARD

distinct types of soil and such divisions may be followed in describing the predominating soil types.



THERE IS MONEY IN GROWING GRAPES



PROGRESSIVE FARMERS ARE GIVING HORSE BREEDING MUCH MORE ATTENTION THAN FORMERLY

Great Lakes Area. South of Lake Ontario is a low plain of level land noted for the production of apples of rich flavor and good keeping quality. Pears are also grown, and peaches near the lake. The eastern portion produces enormous quantities of strawberries. The counties of Niagara, Orleans, Monroe and Wayne are in the center of this region, but the adjoining counties also participate in the production of fruit and contain much of the same soil. Much of the soil is loam which is admirably suited to the production of apples, pears, plums and cherries. Especially for color, flavor and keeping quality of apples, the loam is highly esteemed. The clay loam is well adapted to grass and small grain, and the sandy loam and sand



BERKSHIRES ON A NEW YORK STATE FARM

to small fruit and vegetables. Owing to the heavy nature of the clay and its occasional need of drainage, a difficulty may be experienced in fitting the land early in the spring. This may be largely overcome by fall plowing, and altogether overcome by tile drainage.

Great Plateau. South of the region just described and reaching to the southern border of the State is a moderately high plateau extending from the plain bordering Lake Erie to the Catskill Mountains. This plateau is deeply cut by valleys of rivers, creeks and of the finger lakes, which last beautiful bodies of water lie in valleys deeply eroded during glacial times.



A TYPICAL NEW YORK STATE CORN FIELD



CABBAGE IS EXTENSIVELY GROWN IN NEW YORK STATE

There are some steep hillsides where the plateau descends into these valleys, but back of these are great stretches of level or gently sloping land. The suitability of the hillsides to pasture grasses and of the more level soil to the production of hay makes the region a natural live-stock country. Dairying, general farming and, in the north, extensive bean growing and orcharding are the chief agricultural interests, while in the western part of the region and around Lakes Keuka, Seneca, Canandaigua and the hills overlooking Lake Erie grape growing is extensively conducted.

Most of the soil is a loam which is adapted to the growth of all the ordinary crops of the temperate zone, but especially to potatoes, buckwheat, timothy and redtop. The heavier soil produces grapes and apples very successfully.



The soil of this region is usually well drained unless underlain by a heavy subsoil. Farm manure is the best fertilizer to apply to the soil and, as the region is naturally well adapted to the production of live stock, this should be available on every farm. These soils are also usually benefited by the application of lime. Not being heavy they may be worked early in the spring and crops are not backward.

Long Island. Long Island constitutes a distinct agricultural area. The soil is, in the main, sandy and certain sections are admirably adapted to the raising of vegetables, which occupation is an extensive one over much of the island. Potatoes are grown in great quantity. Melons, cucumbers, asparagus, in



ALFALFA — SECOND CUTTING ON JULY 20TH

fact all the garden vegetables are grown in large quantities for the New York market.

The sandy character of this soil makes it in general well drained. Like all trucking soils, it is greatly benefited by generous applications of farm manure and commercial fertilizers, and these bring very profitable returns.

Mohawk and Hudson Valleys.

Along the Hudson and Mohawk valleys the soils vary greatly in different localities. Along the former river fruit raising is extensively conducted, as well as dairying in the neighborhood of New York City. The Mohawk Valley is noted as a good general farming section.

Adirondack and Catskill Mountains. Much of the Adirondack and Catskill Mountain region is not agricultural land, but in the valleys of these mountains is some very fertile soil. The Champlain Valley and the soil between the Adirondacks and the St. Lawrence River is of great fertility and produces large crops of hay and other general farm crops. It is largely a dairy section. Portions of the region require drainage. Clover yields well and the fertility of the soil is easily maintained.

Educational and Social Advantages. It is unnecessary to urge New York's claim as an educational State or to enlarge upon her social advantages. With ten thousand six hundred twenty

rural school districts scattered throughout the State, no boy or girl need lack instruction or go far from the farm door to get it. The village or city situated only a short distance away, with its graded school, academy or college, will carry them as far along the path of education as they care to go when they have outgrown the district school. If a course in agriculture is desired, the most



LETTUCE



FIELD BEANS



TOBACCO GROWING IS A PROFITABLE INDUSTRY IN MANY SECTIONS OF
NEW YORK STATE



NEW YORK STATE WHEAT FIELD

ample opportunities are afforded by free tuition in subordinate schools of agriculture and in the State Agricultural College at Cornell University, institutions of which the State is justly proud. The traveling libraries, sent out by the State Department of Education, take the best literature of the world directly to the farm home. If the farmer wishes the inspiration and advantage of discussion and of social association with his farm neighbors, he may have them in some one or more of the nine or ten hundred agricultural organizations in the State which exist for the sole purpose of advancing the farm social life and the farmer's knowledge and interest in agriculture.



WELL-BRED STOCK

OPPORTUNITIES IN NEW YORK

To-day there are a great number of good farms in New York lying unoccupied, untilled or poorly tilled, with comfortable buildings, fair fences and within a reasonable distance of good markets, that can be bought for twenty to fifty dollars an acre, with a very small first payment and the balance on long-time payments and at a low rate of interest. There are farms which can be bought for seven to fifteen dollars an acre, with buildings and fences of less value than the higher-priced farms just mentioned, which, under cultivation, will produce good



COUNTRY CHURCH AND SCHOOLHOUSE IN WESTERN NEW YORK

crops and in a very few seasons of thorough tillage be worth much more than their cost. Men whose advanced age and inability to secure competent farm help renders them unable to till their land to advantage offer their farms at a price much below their agricultural value. There are higher-priced farms ranging from seventy-five to one hundred dollars an acre, first-class, well-cultivated dairy farms, with fine buildings and equipment, lying near prosperous towns and cities, many having well-paying milk routes or established markets. Advanced age, poor health, death of owner, settlement of estate, etc. are reasons for these farms being on the market.



ALFALFA — FOUR CUTTINGS PER YEAR — TOTAL YIELD, EIGHT TONS PER ACRE

Another reason for the existence of these unoccupied farms is the rapid development of the west. The agricultural possibilities of the west have been extensively advertised in the east, and we have without protest permitted our ambitious young men to depart to that much-advertised section of the country, leaving some of our farms to fall into an uncultivated, tenantless condition. That the place of these men was not taken by the great number of immigrants coming to our shores every year was largely due to the same cause. The west, through attractive advertisements and favorable terms, induced these foreigners to settle there, whereas if they had known of the splendid possibilities existing in land from two to six hours' ride from where they landed, they would undoubtedly have selected it in preference to that so far away.

The phenomenal growth of business enterprises has fascinated the farm boys and won them by thousands away from the farm. Agriculture is now, however, settling down upon a busi-

ness basis. The agricultural colleges are fitting men to take up the work of cultivating the soil in an intelligent manner and, in this way, the farmer's work is being placed on a plane with the other important professions. The lure of the city is to a great extent counteracted by the modern implements and labor-saving devices, which have served to do away with the oldtime drudgery on the farm. There is now no reason that the farm home should not be as attractive as the city home. Electricity is being used throughout large sections of the country. Telegraph and telephone lines and the rural free delivery mail service have banished the old farm isolation.

These unoccupied farms, with their uncultivated but fertile acres, constitute a reserve asset of almost untold wealth to the State. It is inevitable that, with the rapid growth in population of cities, towns and manufacturing centers, every acre of

available land in the State will be compelled to contribute its full share of products to the demands that will be made by our own home markets. The wisdom of the men who take early advantage of the prevailing low prices of farm lands in New York State will be amply rewarded.

The existence of these cheap New York farms has been taken as proof that they have been abandoned because the land could no longer be profitably cultivated. The statement that land in New York is worn



HOPS ARE A PROFITABLE CROP

out or greatly exaggerated. Some of the methods of farming may be worn out, but our soil, when properly cared for, produces crop yields that compare most favorably with those of other States. New York stands first in the production of milk, hay, potatoes, buckwheat, vegetables, apples, nursery products, beans, flowers, hops, onions and farm forest products and second in honey, wax and grapes. The tobacco crop amounts to fourteen million pounds a year. Hops, sugar beets, meats (beef, veal, mutton, lamb, pork) and poultry products are raised as the farmer elects and at greater profit than in any other section of the country because of nearness to markets. Many farmers near New York City and the other large cities of the State are engaging most profitably in truck farming.

Each year since 1905 a list of farms for sale or to rent in New York has been prepared by the Department of Agriculture. Each farm is described as to location, size, soil, special adaptation to crops, timber, water, fences, buildings, price terms, name and address of owner or agent. As a result of this work over eight million dollars has been expended in the purchase of the farms listed in the several bulletins. Hundreds of these cheap farms, ranging in price from five to twenty-five dollars an acre, have been bought. In not one instance has the owner failed to secure a satisfactory reward from a proper cultivation. Cases are on record where farms costing less than eight dollars an acre have produced crops bringing from sixty to one hundred dollars an acre. The latest edition of the farm bulletin may be obtained upon application to the Department of Agriculture, at Albany.



STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, Commissioner

Bulletin 54

The Dairy Industry in New York State

Issued by the Bureau of Farmers' Institutes and Compiled under the
Supervision of the Director

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INTRODUCTION

During the past year many requests have come to this department for information concerning every factor relating to the dairy industry. Some from those without knowledge of the business on the farm, whose questions can not be answered with any degree of satisfaction to either the writer or recipient in even a lengthy letter, did time permit of such; others from those conversant with the business as a whole, but desiring information along some particular line. This volume has been compiled to meet these needs.

New York stands first among the states in the number of her dairy cows and in the value of her dairy products, and such products constitute the largest gross amount of her farm products. It would seem fit that such an industry should have a special volume devoted to it, setting forth in detail the various phases of the industry, in order that those interested—her own citizens as well as those outside her borders—may know of its magnitude and the important factors in carrying it on, as well as what the state is doing for its advancement.

In order to accomplish the above, the endeavor of the compiler has been to show by statistics how extensive the industry has grown and its relative importance in the various counties. The laws relating to live stock and dairy products; the type of cow to be desired and how she may be developed; her housing, as well as economical feeding both winter and summer, are set in order.

Particular effort has been made to set forth the facts as to the production and distribution of milk, for now and increasingly in the future will the product of the dairies of this state be marketed in this form. The various state agencies which contribute to the uplift and development of the industry have been emphasized. The thought has been to give these matters in such a clear and simple way that they may be easily comprehended by the rank and file who shall read these pages; yet not unworthy careful perusal by those fully conversant with them.

This volume is issued with the hope that it may be helpful to seekers after knowledge along dairying lines and help to set in a true light the facts relating to this important industry in the Empire State. It has been made possible only by the cooperation and assistance of the many contributors who have so cheerfully given their best; men who were selected because of their ability to treat the particular subject assigned to them. To these, the compiler would express his appreciation and gratitude,—especially to Governor Hoard; native of this state, successful dairyman and dairy editor, who has probably done more by acts, and with voice and pen, to advance the dairy interest of this state and nation, than any other individual.

LAWS IN FORCE IN NEW YORK STATE RELATING TO DAIRYING

THE AGRICULTURAL LAW

ARTICLE 2

General Provisions

§ 3. Power of commissioner, his deputies and employees. The commissioner of agriculture, his deputies, clerks, experts, chemists, agents and counsel employed by him, shall have full access to all places of business, factories, farms, buildings, carriages, cars and vessels used in the manufacture, sale or transportation within the state of any dairy products or any imitation thereof, or of any article or product with respect to which any authority is conferred by this chapter on such commissioner. They may examine and open any package, can or vessel containing or believed to contain any article or product, which may be manufactured, sold or exposed for sale in violation of the provisions of this chapter, and may inspect the contents therein, and take therefrom samples for analysis. The commissioner of agriculture shall have the power by subpoena or subpoena duces tecum, issued and attested by him in his official capacity to require the attendance and testimony before him, or any of his deputy commissioners or other persons designated by him for that purpose, of any person whom he may have reason to believe has knowledge of any alleged violation of this chapter, and the production, before him or any of his deputy commissioners of agriculture of any records, books, papers and documents for the purpose of investigating any alleged violation of this chapter. Such subpoena or subpoena duces tecum may be

Full access
for in-
spection.

Opening
cans and
vessels.

Power
to sub-
poena.

Service.

served by any person over the age of twenty-one years. No person shall be excused from attending and testifying or producing any records, books, papers or other documents before said commissioner of agriculture or any of his deputy commissioners of agriculture or other person designated by him for that purpose upon such investigation upon the ground or for the reason that the testimony or evidence, documentary or otherwise, required of him may tend to convict him of a crime or subject him to a penalty or forfeiture, but no person shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter or thing concerning which he may so testify or produce evidence.

Excuse.

Testimony.

Use of testimony against witness.

Refusal to testify.

False statement.

Oaths.

documentary or otherwise, and no testimony so given or produced shall be received against him upon any criminal action, investigation or proceeding. Any person who shall omit, neglect or refuse to attend and testify or to produce any records, books, papers or documents, if in his power so to do, in obedience to such subpoena or subpoena duces tecum shall be guilty of a misdemeanor. Any person who shall wilfully and knowingly make any false statement under oath before the commissioner of agriculture, a deputy commissioner of agriculture or other person designated, as provided herein, concerning a material matter, shall be guilty of perjury. The commissioner of agriculture and his deputy commissioners of agriculture and other persons designated, as provided herein, are hereby authorized and empowered to administer oaths and affirmations in the usual appropriate forms to any person in any matter or proceedings authorized as aforesaid and in all matters pertaining or relating to this chapter and to take and administer oaths and affirmations in the usual appropriate forms, in taking any affidavit or deposition, which may be necessary or required by law or by any order, rule or regulation of the commissioner of agriculture for or in connection with the official purposes, affairs, powers, duties or proceedings of said commissioner of agriculture or his deputy commissioners of agriculture or for any official purpose lawfully authorized by said commissioner of agriculture. (*As amended by chapter 345 of the Laws of 1913.*)

§ 4. **Expert butter and cheese makers.** The commissioner of agriculture may appoint and employ expert butter and cheese makers, who shall, under his direction, examine and inspect butter ^{Duties.} and cheese factories and attend at agricultural fairs, societies and meetings designated by the commissioner, to impart thereat information as to the best and most improved method of making ^{Information given.} butter and cheese and improving the quality thereof. (*As amended by chapter 112 of the Laws of 1910.*)

ARTICLE 3**Dairy Products****Section 30. Definitions.**

31. Care and feed of cows, and care and keeping of the produce from such cows.
32. Prohibiting the sale of adulterated milk, imitation cream and regulating the sale of certified milk.
33. Regulations in regard to butter and cheese factories.
34. Penalty for delivery of adulterated milk.
35. Inspection; how conducted.
36. Branded cans, jars or bottles not to be sold, re-marked or used without consent of owner.
37. Regulations in regard to condensed milk.
38. Manufacture and sale of imitation butter prohibited.
39. Manufacture or mixing of animal fats with milk, cream or butter prohibited.
40. Prohibited articles not to be furnished for use.
41. Coloring matter, dairy terms, size of package, labeling, penalties.
42. Coloring matter in food products; analysis by state board of health.
43. Manufacture and sale of imitation cheese prohibited.
44. When prohibitions do not apply to skim-milk or skim-cheese.
45. Unclean receptacles and places for keeping milk; notice to violators of provisions.
46. Unsanitary cans and receptacles condemned.
47. Receptacles to be cleaned before returning; receptacles may be seized; evidence; violation; milk can inspectors.
48. Manufacturer's brand of cheese.
49. Use of false brand prohibited.
50. County trade marks.
51. Object and intent of this article.
52. Penalties.
53. Butterine and similar products not to be purchased by certain institutions.
54. Purchase, sale and use of butterine and similar products prohibited in certain institutions.

Section 55. Licensing of milk gathering stations where milk is bought.

56. Power of Commissioner to investigate.

57. Granting and revoking licenses.

58. Certiorari to review.

59. Records to be kept.

60. Right of review.

61. Offenses.

*62.

*63.

*64.

§ 30. Definitions. The term "butter" when used in this article means the product of the dairy, usually known by that term, which is manufactured exclusively from pure, unadulterated milk or cream or both with or without salt or coloring matter; and the term "cheese," when used in this article, means the product of the dairy usually known by that term, which is manufactured exclusively from pure, unadulterated milk or cream, or both, and with or without coloring matter, salt, rennet, sage, olives, pimentos, walnuts, peanuts, tomatoes, celery salt or onions added thereto as a flavor. And provided further, that when manufactured by adding to the elemental product of the dairy, usually known by the term "cheese," and manufactured exclusively from pure unadulterated milk or cream or both, any pimentos, olives, walnuts, peanuts, celery salt, tomatoes, or onions, that the percentage of all such substances so added shall not exceed twenty-five per centum in bulk of the manufactured product.

The terms "oleomargarine," "butterine," "imitation of butter," or "imitation cheese" shall be construed to mean any article or substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure or unadulterated milk or cream, or any such article or substance into which any oil, lard or fat not produced from milk or cream enters as a component part, or into which melted butter or butter in any condition or state, or any oil thereof has been introduced to take the place of cream. The term "adulterated milk" when so used means:

Butter.

Cheese.

Oleo-margarine.
Butterine.
Imitation
butter and
cheese.

Adulterated
milk.

* These sections did not become law.

Water or fluids.	1. Milk containing more than eighty-eight and one-half per centum of water or fluids.
Milk solids.	2. Milk containing less than eleven and one-half per centum of milk solids.
Fats.	3. Milk containing less than three per centum of fats.
Time taken.	4. Milk drawn from cows within fifteen days before and five days after parturition.
Feed of cows.	5. Milk drawn from animals fed on distillery waste or any substance in a state of fermentation or putrefaction or on any unhealthy food.
Insanitary surroundings.	6. Milk drawn from cows kept in a crowded or unhealthy condition; or milk produced or kept in insanitary surroundings or in any environment or under any condition whatever that is inimical to its healthfulness or wholesomeness.
Removal of cream.	7. Milk from which any part of the cream has been removed.
Dilution.	8. Milk which has been diluted with water or any other fluid, or to which has been added or into which has been introduced any foreign substance whatever.
Pure or unadulterated milk and cream.	All adulterated milk shall be deemed unclean, unhealthy, impure and unwholesome. The terms "pure milk" or "unadulterated milk" when used singly or together, mean sweet milk not adulterated, and the terms "pure cream" or "unadulterated cream" when used singly or together, mean cream taken from pure and unadulterated milk. The term "adulterated cream" when used shall mean cream containing less than eighteen per centum of milk fat or cream to which any substance whatsoever has been added. (<i>As amended by chapter 455 of the Laws of 1913.</i>)
Adulterated cream.	

People v. Bosch, 129 App. Div. 660; People v. Bowen, 182 N. Y. 1; People v. Cipperly, 101 Id. 634; s. c. (dissenting opinion), 37 Hun, 324; People v. Eddy, 12 N. Y. Supp. 628; People v. Kibler, 106 N. Y. 321; People v. Koster, 50 Misc. Rep. 46; People v. Anton Koster, 121 App. Div. 852; People v. Liberman Dairy Co., 195 N. Y. 609; People v. Schaeffer, 41 Hun, 23; People v. West, 106 N. Y. 293; People v. McDermott Dairy Co., 132 N. Y. Supp. 329; Bellows v. Raynor, 207 N. Y. 389.

§ 31. Care and feed of cows, and care and keeping of the produce from such cows. No person shall keep cows, for the production of milk for market or for sale or exchange, or for manufacturing the milk or cream from the same into any article of food, in a crowded or unhealthy condition or in unhealthful or unsanitary

Care.

surroundings and no person shall keep such cows or the product therefrom in such condition or surroundings or in such places as shall cause or tend to cause the produce from such cows to be in an unclean, unhealthful or diseased condition, if the produce from such cows is to be sold, offered or exposed for sale upon the markets for consumption or to be manufactured into any food product, nor shall such cows or the produce therefrom be handled or cared for by any person suffering with or affected by an infectious or contagious disease, nor shall any such cows be fed on any substance that is in a state of putrefaction or fermentation, or upon any food that is unhealthful or that produces or may produce impure, unhealthful, diseased or unwholesome milk. But this section shall not be construed to prohibit the feeding of ensilage. The commissioner of agriculture is hereby empowered to give such instruction and impart such information as in his judgment may be deemed best to produce a full observance of the provisions of this section. *(As amended by chapter 216 of the Laws of 1910.)*

§ 32. Prohibiting the sale of adulterated milk, imitation cream and regulating the sale of certified milk.

No person shall sell or exchange or offer or expose for sale or exchange, any unclean, impure, unhealthy, adulterated or unwholesome milk or any cream from the same, or any unclean, impure, unhealthy, adulterated, colored, or unwholesome cream, or sell or exchange, or offer or expose for sale or exchange, any substance in imitation or semblance of cream, which is not cream, nor shall he sell or exchange, or offer or expose for sale or exchange any such substance as and for cream, or sell or exchange, or offer or expose for sale or exchange any article of food made from such milk or cream or manufacture from any such milk or cream any article of food. No person shall sell or exchange, or offer or expose for sale or exchange, as and for certified milk, any milk which does not conform to the regulations prescribed by and bear the certification of a milk commission appointed by a county medical society organized under and chartered by the medical society of the state of New York and which has not been pronounced by such authority to be free from antiseptics, added preservatives, and pathogenic bacteria, or bac-

teria in excessive numbers. All milk sold as certified milk shall be conspicuously marked with the name of the commission certifying it. Any person delivering milk to any butter or cheese factory, condensary, milk gathering station or railway station to be shipped to any city, town or village shall be deemed to expose or offer the same for sale whether the said milk is delivered or consigned to himself or another. Each and every can thus delivered, shipped or consigned, if it be not pure milk, must bear a label or card upon which shall be stated the constituents or ingredients of the contents of the can.

Delivery
deemed an
offer for
sale.

Constitu-
ents
stated.

People v. Abramson and Fichhandler, 137 App. Div. 549; People v. Beaman, 102 Id. 151; People v. Briggs, 121 Id. 927, 193 N. Y. 457; People v. Cipperly, 101 Id. 634; s. c. (dissenting opinion), 37 Hun, 324; People v. Eddy, 12 N. Y. Supp. 628; People v. Kibler, 106 N. Y. 321; People v. Liberman Dairy Co., 128 App. Div. 904, 931; People v. Schaeffer, 41 Hun, 23; People v. Tsitsera, 138 App. Div. 446, 122 N. Y. Supp. 915; People v. West, 106 N. Y. 293.

Kind of
milk pro-
hibited.

Any part of
milk kept
back.

Sour milk.

Use of
dairy pro-
ducts by
factory-
man.

Record of
daily busi-
ness.

§ 33. Regulations in regard to butter and cheese factories. No person shall sell, supply or bring to be manufactured to any butter or cheese factory any milk diluted with water, or any unclean, impure, unhealthy, adulterated or unwholesome milk, or milk from which any of the cream has been taken, except pure skim milk to skim-cheese factories. No person shall sell, supply or bring to be manufactured to any butter or cheese factory any milk from which there has been kept back any part of the milk commonly known as strippings, or any milk that is sour, except pure skim milk to skim-cheese factories. The owner or proprietor or the person having charge of any butter or cheese factory, not buying all the milk used by him, shall not use for his own benefit, or allow any of his employees or any other person to use for his own benefit, any milk, cream, butter or cheese or any other product thereof, brought to such factory, without the consent of the owners of such milk or the products thereof. Every butter or cheese manufacturer not buying all the milk he uses, shall keep a correct account of all the milk daily received, of the number of packages of butter and cheese made each day, and the number of packages and aggregate weight of cheese and butter disposed of each day; which account shall be open to inspection to any person who delivers milk to such factory. Whenever manufacturers of butter or cheese purchase milk upon the basis of the

amount of fat contained therein and use for ascertaining the amount of such fat what is known as the Babcock test, or whenever the proceeds of co-operative creameries and cheese factories are allotted on the basis of determinations of milk fat by the Babcock test, the bottles and pipettes used in such test shall before use be examined by the director of the New York agricultural experiment station. If such bottles are found to be properly constructed and graded so as to accurately show the amount of fat contained in milk, each of them shall be legibly and indelibly marked "S. B." No bottle shall be so marked except as herein provided or used in any such test by such manufacturers, unless so examined and marked. The acid used in making such test by such manufacturers shall be examined from time to time by competent chemists employed by the commissioner of agriculture and if found not to be of sufficient strength the use of such acid shall be prohibited. No person or persons receiving or purchasing milk or cream upon the basis of the amount of fat contained therein, shall credit any patron or patrons delivering milk or cream thereto with a greater or lesser percentage or average percentage of fat than is actually contained in the milk or cream so delivered. The commissioner of agriculture or persons employed by him for that purpose may at any time assist in making tests of milk received at a butter or cheese factory for the purpose of determining the efficiency of tests usually made at such factory. All persons using other than standard bottles or acid which is not of the required strength to accurately determine the amount of fats in milk or crediting any patron or patrons delivering milk or cream with a greater or lesser percentage or average percentage of fat than is actually contained in the milk or cream so delivered, shall be subject to the penalties prescribed by section fifty-two of this article, and shall be guilty of a misdemeanor.

Babcock
test glass-
ware.

Examina-
tion of
acid.

Crediting
fat per-
centage.

Agents may
assist in
factory
test.

Misde-
meanor.

§ 34. Penalty for delivery of adulterated milk. Any person, firm, association or corporation delivering any milk to any butter or cheese factory in violation of any of the provisions of this chapter shall forfeit and pay to the patrons, firm, association or corporation owning the milk delivered to such factory the sum of fifty dollars, to be recovered in a civil action by the person, firm, association or corporation entitled thereto.

§ 35. **Inspection; how conducted.** When the commissioner of agriculture, an assistant commissioner, or any person or officer authorized by the commissioner, or by this chapter, to examine or inspect any product manufactured or offered for sale shall in discharge of his duties take samples of such product, he shall before taking a sample, request the person delivering the milk or who has charge of it at the time of inspection, to thoroughly stir or mix the said milk before the sample is taken. If the person so in charge refuses to stir or mix the milk as requested, then the person so requesting shall himself so stir and mix the milk before taking the sample, and the defendant shall thereafter be precluded from introducing evidence to show that the milk so taken was not a fair sample of the milk delivered, sold, offered or exposed for sale by him. The person taking the sample of milk for analysis shall take duplicate samples thereof in the presence of at least one witness, and he shall in the presence of such witness seal both of such samples, and shall tender, and, if accepted, deliver at the time of taking one sample to the manufacturer or vender of such product, or to the person having custody of the same, with a statement in writing of the cause of the taking of the sample. In taking samples of milk for analysis at a creamery, factory, platform or other place where the same is delivered by the producer for manufacture, sale or shipment, or from a milk vender who produces the milk which he sells, with a view of prosecuting the producer of such milk for delivering, selling or offering for sale adulterated milk, the said commissioner of agriculture or assistant or his agent or agents shall within ten days thereafter, with the consent of the said producer, take a sample in a like manner of the mixed milk of the herd of cows from which the milk first sampled was drawn and shall deliver the duplicate sample to the said producer and shall cause the sample taken by himself or his agent to be analyzed. If the sample of milk last taken by the commissioner of agriculture or his agent or agents shall upon analysis prove to contain no higher percentage of milk solids, or no higher percentage of fat than the sample taken at the creamery, factory, platform or other place, then no action shall lie against the said producer for violation of subdivisions one, two, three, seven and eight of section thirty of this chapter. In taking a

Stirring
the milk.

Duplicate
sample.

Herd
sample.

Bar to
action.

second sample as above set forth from the mixed milk of the herd, ^{Fair sample.} it shall be the duty of the commissioner of agriculture to have an assistant, agent or agents present during the entire time in which the said cattle are being milked to observe closely so as to be sure that the milk thus to be sampled is not adulterated and to see that it is thoroughly mixed so that the sample taken shall be a fair sample of the average quality of the mixed milk of the entire dairy or herd of cows of said producer. If, however, the said producer refuses to allow such examination of the milk produced by his dairy, then he shall be precluded from offering any evidence what- ^{Refusal of sample.} ever tending to show that the milk delivered by him at the said creamery, factory, platform or other place was just as it came from the cow. If the said producer does permit such examination, the commissioner of agriculture shall, upon receiving appli- ^{Copy of analysis on application.} cation therefor, send to said producer a copy of the analysis of each of the samples of milk so taken and analyzed as above provided. If a sample of milk shall have been taken by the commissioner of agriculture or by his orders or directions from any dairy within this state and an analysis thereof has been made by the commissioner or by his authority, any person who is or was buying milk from the said dairy at or subsequent to the time of such taking, may apply to the commissioner of agriculture for a copy of the analysis of the said sample of milk so taken and the commissioner shall thereafter furnish the said applicant with such copy. (*As amended by chapter 608 of the Laws of 1911.*)

People v. Butler, 140 App. Div. 705; People v. Hodnett, 81 N. Y. 137; People v. St. John, 89 App. Div. 617, 178 N. Y. 617, 201 U. S. Sup. Ct. 633; People v. Salisbury, 2 App. Div. 39; s. c., 151 N. Y. 663; People v. Weaver, 116 App. Div. 594; People v. Wiard, 61 App. Div. 612, 170 N. Y. 590; People v. Woodbeck, 55 App. Div. 227.

§ 36. Branded cans, jars or bottles not to be sold, re-marked or used without consent of owner. No person shall hereafter without the consent of the owner or shipper, use, sell, dispose of, buy or traffic in any milk can, jar or bottle, or cream can, jar or bottle, belonging to any dealer or shipper of milk or cream residing in the state of New York or elsewhere, who may ship milk or cream to any city, town or place within this state, having the name or initials of the owner, dealer or shipper, stamped, marked or fastened on such can, jar or bottle, or wilfully mar, erase or change ^{Tampering with label.}

by re-marking or otherwise said name or initials of any such owner, dealer or shipper, so stamped, marked or fastened upon said can, jar or bottle. Nor shall any person without the consent of the owner use such can, jar or bottle, for any other purpose than for milk or cream; nor shall any person without the consent of the owner place in any such can, jar or bottle, any substance or product other than milk or cream.

Use of receptacles for other purposes.

Milk used.

Labels on packages.

§ 37. Regulations in regard to condensed milk. No condensed milk shall be made or offered or exposed for sale or exchange unless manufactured from pure, clean, healthy, fresh, unadulterated and wholesome milk from which the cream has not been removed either wholly or in part, or unless the proportion of milk solids shall be in quantity the equivalent of eleven and one-half per centum of milk solids in crude milk, and of which solids twenty-five per centum shall be fats. No person shall manufacture, sell or offer for sale or exchange in hermetically sealed cans, any condensed milk unless put up in packages upon which shall be distinctly labeled or stamped the name of the person or corporation by whom made and the brand by which or under which it is made. When condensed milk shall be sold from cans or packages not hermetically sealed, the producer shall brand or label the original cans or packages with the name of the manufacturer of the milk contained therein. (*As amended by chapter 608 of the Laws of 1911.*)

Genesee Valley Milk Products Co. v. J. H. Jones, 128 N. Y. Supp. 191 (condensed skim milk).

Manufacture of imitation butter.

Addition of foreign substance.

§ 38. Manufacture and sale of imitation butter prohibited. No person by himself, his agents or employees, shall produce or manufacture out of or from any animal fats or animal or vegetable oils not produced from unadulterated milk or cream from the same, the article known as oleomargarine or any article or product in imitation or semblance of natural butter produced from pure, unadulterated milk or cream of the same; or mix, compound with or add to milk, cream or butter any acids or other deleterious substance or any animal fats or animal or vegetable oils not produced from milk or cream, so as to produce any article or sub-

stance or any human food in imitation or in semblance of natural butter, nor sell, keep for sale or offer for sale any article, substance or compound, made, manufactured or produced in violation of the provisions of this section, whether such article, substance or compound shall be made or produced in this state or elsewhere. Any person manufacturing, selling, offering or exposing for sale any commodity or substance in imitation or semblance of butter, the product of the dairy, shall be deemed guilty of a violation of this chapter, whether he sells such commodity or substance as butter, oleomargarine or under any other name or designation whatsoever and irrespective of any representations he may make relative to such commodity or substance. Any dealer in any article or product, the manufacture or sale of which is prohibited by this section, who shall keep, store or display such article or product, with other merchandise or stock in his place of business, shall be deemed to have the same in his possession for sale.

Sale of imitation butter.

Violation irrespective of representations.

Display equivalent to offer for sale.

People v. Arensburg, 40 Hun, 358; s. c., reversed, 103 N. Y. 388, 105 Id. 123; People v. Bremer, 69 App. Div. 14; People v. Clark, 124 N. Y. Supp. 1023; People v. Fried, 62 Misc. Rep. 240; People v. Hale, 62 Id. 240; People v. Hill, 44 Hun, 472; People v. Kerin, 39 Id. 631, 4 Crim. Rep. 140; People v. Laning, 40 App. Div. 227, 59 N. Y. Supp. 1057; People v. Mahaney, 41 Hun, 26; People v. Marx, 99 N. Y. 377; People ex rel. McAuley v. Wahle, 124 App. Div. 762; People v. Meyer, 44 Id. 1; People v. Schintzius, 61 Misc. Rep. 410; People v. Simpson Crawford Co., 62 Id. 240; People v. Teele, 131 App. Div. 87; Plumley v. Commonwealth of Massachusetts, 155 U. S. 461, 15 Sup. Ct. Rept. 154; Powell v. Commonwealth of Pennsylvania, 114 Penn. St. 265, 127 U. S. 678; Waterbury v. Egan, 3 Misc. Rep. 355, 52 State Rep. 421, 23 N. Y. Supp. 115; Waterbury v. Newton, 50 N. J. L. 534.

§ 39. **Manufacture or mixing of animal fats with milk, cream or butter prohibited.** No person shall manufacture, mix or compound with or add to natural milk, cream or butter any animal fats or animal or vegetable oils, nor make or manufacture any oleaginous substance not produced from milk or cream, with intent to sell the same as butter or cheese made from unadulterated milk or cream or have the same in his possession with such intent; nor shall any person solicit or take orders for the same or offer the same for sale, nor shall any such article or substance or compound so made or produced, be sold as and for butter or cheese, the product of the dairy. No person shall coat, powder or color with annatto or any coloring matter whatever, butterine

Manufacture.

Sale.

Coloring.

or oleomargarine or any compound of the same or any product or manufacture made in whole or in part from animal fats or animal or vegetable oils not produced from unadulterated milk or cream by means of which such product, manufacture or compound shall resemble butter or cheese, the product of the dairy; nor shall he have the same in his possession with intent to sell the same nor shall he sell or offer to sell the same. No person by himself, his agents or employees, shall manufacture, sell, offer or expose for sale, butter that is produced by taking original packing stock or other butter or both and melting the same, so that the butter fat can be drawn off, then mixing the said butter fat with skimmed milk or milk or cream or other milk product and reurning the said mixture, or that is produced by any similar process and is commonly known as boiled or process butter, unless he shall plainly brand or mark the package or tub or wrapper in which the same is put up in a conspicuous place with the words "renovated butter" or "process butter." If the same shall be put up, sold, offered or exposed for sale in prints or rolls, then the said prints or rolls shall be labeled plainly with printed letters in a conspicuous place on the wrapper with the words "renovated butter" or "process butter." If the same is packed in tubs or boxes or pails or other kind of a case or package the words "renovated butter" or "process butter" shall be printed on the top and side of the same in letters, at least, one inch in length, so as to be plainly seen by the purchaser. If such butter is exposed for sale, uncovered, not in a package or case, a placard containing the label so printed shall be attached to the mass of butter in such manner as to easily be seen and read by the purchaser. Every person selling, offering or exposing for sale at retail, "renovated butter" or "process butter," shall cause each parcel or package of such butter delivered to or for a customer to be wrapped in a light colored paper on which shall be printed in black letters, not less than three-eighths inch square and in Gothic type, the words "renovated butter" or "process butter." No person shall sell, offer or expose for sale, any butter or other dairy products containing a preservative, but this shall not be construed to prohibit the use of salt in butter or cheese, or spirituous liquors in club or other fancy cheese or sugar in

Process butter.

Labeling.

Labeling prints.

Labeling tubs.

Display placard.

Retail wrappers.

Preservative.

condensed milk. No person, firm, association or corporation shall induce or attempt to induce any person to violate any of the provisions of this chapter. Any person, firm, association or corporation selling, offering or advertising for sale any substance, preparation or matter for use in violation of the provisions of this chapter shall be guilty of a violation of this section.

Inducing
violations.

People v. Arensberg, 40 Hun, 358; s. c., reversed, 103 N. Y. 388, 105 Id. 123; People v. Biersicker, 169 Id. 53; People v. Fried, 62 Misc. Rep. 240; People v. Hale, 62 Id. 240; People v. Hill, 44 Hun, 472; People v. Kerin, 39 Hun, 631; People v. Mack, 97 App. Div. 474; People v. Mahaney, 41 Hun, 26; People v. Simpson Crawford Co., 62 Misc. Rep. 240; People v. Waters, 114 Id. 669; Plumley v. Commonwealth of Massachusetts, 155 U. S. 461, 15 Sup. Ct. Rep. 154; Powell v. Commonwealth of Pennsylvania, 144 Penn. St. 265, 127 U. S. 678; Waterbury v. Newton, 50 N. J. L. 534.

§ 40. Prohibited articles not to be furnished for use. No keeper or proprietor of any bakery, hotel, boarding-house, restaurant, saloon, lunch-counter or place of public entertainment, nor any person having charge thereof or employed thereat, nor any person furnishing board for any others than members of his own family, or for any employees where such board is furnished for a compensation or as part of the compensation of any such employee, shall keep, use or serve therein either as food for his guests, boarders, patrons, customers or employees or for cooking purposes any article or substance made in violation of the provisions of this article. Any keeper or proprietor of any hotel, boarding-house, restaurant, saloon, lunch-counter or place of public entertainment who uses or serves therein for his guests any oleaginous substance as a substitute for butter, the manufacture or sale of which is not prohibited by the agricultural law, shall print plainly and conspicuously on the bill-of-fare, if there is one, the words, "Oleomargarine Used Here" and shall post up conspicuously in different parts of each room where such meals are served, signs in places where they can be easily seen and read, which shall bear the words, "Oleomargarine Used Here" in letters at least two inches in length and so printed as to be easily read by guests or boarders. (*As amended by chapter 357 of the Laws of 1909.*)

Food for
guests, em-
ployees,
etc.

Provisions
relative to
legal sub-
stitutes.

People v. Berwin, 77 N. Y. Supp. 859; People v. Brien, 117 Id. 246; People v. Dobbins, 113 Id. 1076; People v. Fox, 4 App. Div. 38, 74 State Rep. 500, 38 N. Y. Supp. 635; People v. Gottfried, 113 Id. 1086; People v. Guiton Co., 137 N. Y. Supp. 600.

§ 41. Coloring matter, dairy terms, size of package, labeling, penalties. No person manufacturing with intent to sell any substance or article in imitation or semblance of butter or cheese not made exclusively from unadulterated milk or cream or both, with salt or rennet or both and with or without coloring matter or sage, but into which any animal, intestinal or offal fats, or any oils or fats or oleaginous substance of any kind not produced from pure, unadulterated milk or cream, or into which melted butter, or butter in any condition or state or any modification of the same, or lard or tallow shall be introduced, shall add thereto or combine therewith any annatto or compounds of the same, or any other substance or substances whatever, for the purpose or with the effect of imparting thereto a color resembling yellow, or any shade of yellow butter or cheese, nor introduce any such coloring matter or other substance into any of the articles of which the same is composed. And no person selling any oleaginous substance not made from pure milk or cream of the same as a substitute for butter shall sell, give away or deliver with such substance any coloring matter; nor shall any person manufacturing, selling or offering for sale any such goods make or sell them under any brand, device or label bearing words indicative of cows or the product of the dairy or the names of breeds of cows or cattle, nor use terms indicative of processes in the dairy in making or preparing butter; no such substance shall hereafter be sold, offered or exposed for sale in this state except it be sold in packages containing not more than five pounds, such packages to be wrapped and sealed, the original seal of which shall be unbroken and upon which seal shall be plainly printed the name and address of the manufacturer of said oleomargarine, and the said packages shall be plainly and conspicuously labeled with the word "Oleomargarine" in Gothic or equally conspicuous letters at least three-eighths of an inch high. The word "Oleomargarine" in large prominent letters shall be stamped by indentation on each separate brick or portion of the substance itself before it is wrapped and sealed.

Imitating butter color.

Sale or gift of color.

Dairy terms prohibited.

Weight, seal and label of package.

Brick stamp.

Penalties. Any person violating any of the provisions of sections forty or forty-one of the agricultural law shall forfeit and pay a penalty to the people of the state of New York of not less than fifty

dollars nor more than one hundred dollars for the first violation and not less than two hundred dollars nor more than five hundred dollars for the second and each subsequent violation. Whoever by himself or another violates any of the provisions of sections forty or forty-one of the agricultural law shall be guilty of a misdemeanor and upon conviction shall be punished by a fine of not less than one hundred dollars nor more than five hundred dollars or by imprisonment of not less than one month nor more than one year or by both such fine and imprisonment for the first offense and by not less than six months nor more than one year for the second offense. (*As amended by chapter 357 of the Laws of 1909.*)

People v. Arensburg, 40 Hun, 358; s. c., reversed, 103 N. Y. 388, 105 Id. 123; People v. Griffin, 128 N. Y. Supp. 946, 71 Misc. Rep. 566; People v. Hill, 44 Hun, 472; People v. Redding, 70 Misc. Rep. 420; People v. Guiton Co., 137 N. Y. Supp. 600.

§ 42. **Coloring matter in food products; analysis by state board of health.** No person or persons shall manufacture, sell or expose for sale any poisonous coloring matter for the coloring of food products of any kind, nor shall any person or persons use any poisonous coloring matter manufactured, sold, offered or exposed for sale within this state; nor shall any person or persons sell, offer or expose for sale any food product containing such poisonous coloring matter. The state commissioner of health shall cause samples of coloring matter that are exposed for sale upon the market for use in food products to be analyzed and report the results of such analysis to the legislature at the next session.

§ 43. **Manufacture and sale of imitation cheese prohibited.** No person shall manufacture, deal in, sell, offer or expose for sale or exchange any article or substance, in the semblance of or in imitation of cheese made exclusively of unadulterated milk or cream, or both, into which any animal, intestinal or offal fats or oils, or melted butter or butter in any condition or state or modification of the same, or oleaginous substances of any kind not produced from unadulterated milk or cream, shall be introduced.

§ 44. **When prohibitions do not apply to skim-milk or skim-cheese.** Except in the counties of New York and Kings, the pro-

Misde-
meanor.

Poisonous
coloring
matter.

Analysis
by state
board of
health.

Skim-
milk.

Skim-
cheese.

hibitions contained in this article against the sale of adulterated milk shall not apply to skim-milk, which is clean, pure, healthy, wholesome and unadulterated, except by skimming, sold for use in the county in which it is produced or an adjoining county, if it is sold for and as skimmed milk. The prohibitions in this article against the sale of cheese made from unadulterated* milk or cream, shall not apply to pure skim-cheese made from milk which is clean, pure, healthy, wholesome and unadulterated, except by skimming.

People v. Kibler, 106 N. Y. 321.

Sanitation.

Notice to
clean re-
ceptacles,
etc.

Applica-
tion for
license.

Statement.

§ 45. Unclean receptacles and places for *keping milk; notice to violators of provisions. No person, firm, association or corporation, producing, buying or receiving milk for the purpose of selling the same for consumption as such, or for manufacturing the same into butter, cheese, condensed milk, or other human food, shall keep the same in utensils, cans, vessels, rooms, or buildings that are unclean or have unsanitary surroundings or drainage or in any condition whatsoever that would tend to produce or promote conditions favorable to unhealthfulness or disease. The commissioner of agriculture shall notify all persons, firms, associations or corporations, violating this section, to clean said utensils, cans, vessels, rooms or buildings, or to so improve the sanitary conditions that the law will not be violated, and if such notice is complied with in ten days' time, Sundays excepted, then no action shall lie for a violation of this section. Any person having charge of any milk gathering station where milk is received from the dairymen for the purpose of selling the same for consumption or shipping the same to market for consumption as human food before taking such charge or operating or working as such agent or person in charge shall apply to the commissioner of agriculture for a license to so work or operate or have charge, and shall at the time of making such application, file with the commissioner a statement under oath, setting forth the fact that he will not while having charge of or operating any such milk gathering establishment or while employed therein adulterate or suffer or permit the adulteration of any such milk or any product thereof during the term for which he may be licensed. After the

* So in the original.

applicant shall have complied with the foregoing provisions of this section, the commissioner of agriculture upon being satisfied that the applicant is a person of good moral character and a qualified and proper person to so have charge of or operate any such milk gathering station or establishment shall issue to said applicant a license, which shall qualify him to have charge of any such milk gathering station or establishment for the period of two years from the date of such license; provided, however, that where milk is to be bought from the dairymen at any such milk gathering station by the proprietor, person in charge or any agent of the proprietor of such station, such license shall be only for a period of one year, as provided in sections fifty-five to sixty-four, inclusive, of this article, and the matter required to be set forth in the application for a license under the provisions of this section shall be set forth in the application provided for in sections fifty-five to sixty-four in addition to the matters therein required. The person regularly doing the work of receiving, caring for and shipping the milk at any station or establishment, or in case more than one person is so employed then the foreman in charge of such works shall be deemed to be a person in charge of such station or establishment within the meaning and purposes of this section. Such license certificate shall be kept at such station or establishment where the license is so employed and shall be open to the inspection of the representatives of the department of agriculture and the public. Any person having charge of any milk gathering station or establishment as aforesaid shall keep a true and correct monthly record of the receipts of milk or other dairy products received at such station or establishment, and also a true and correct monthly record of all sales or shipments of milk, cream or other dairy products shipped or sold from such station or establishment, and shall also keep a true and correct monthly record of the amount of skim milk produced in such station or establishment and of the disposition of said skim milk. Such record shall be preserved at such station or establishment for at least two years after the same shall have been made and such records shall at all times be open to the inspection of the commissioner of agriculture, his assistants or agents. When cream is sold or shipped from

Issuing
license.

Exception.

Person in
charge.

Certificate.

Records.

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B.
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Label on
bottle or
package.

Conclu-
sions as
to adul-
terating
with skim-
milk.

Presump-
tive evi-
dence.

Presump-
tions.

any such station or establishment so selling or shipping milk for consumption as aforesaid, each original bottle or package of one quart or less of cream so shipped or sold shall bear a label securely attached to the side of such bottle or package on which shall be conspicuously printed the word "cream" in black letters of at least one-fourth of an inch in length or else the word "cream" shall be blown in the side of such bottle in plain raised letters of at least one-half an inch in length, and the top and side of each and every other original package or can containing cream or original crate or case containing bottles of cream so shipped or sold shall bear a label securely attached on which shall be conspicuously printed the word "cream" in black letters of at least one inch in length and also a plainly written or printed statement on the label stating from whom and what station the same is shipped and the name of the consignee and point of destination and the date on which the cream therein was produced by such separation or skimming. The shipment of each and every such original package of cream so shipped and not so labeled as herein required shall constitute a separate violation. When cream is so separated or skimmed from milk at any such station or establishment and the supply of milk on hand thereat at the time of the next regular daily shipment of milk therefrom, consisting of the total amount of milk in such shipment, together with that remaining on hand immediately after such shipment, is not thereby decreased or correspondingly less than the total quantity received during any period extending from some point of time before such skimming was done until the time of such shipment, together with the amount of milk on hand at the commencement of such period, and such decrease is not equal in amount to the quantity of milk that must have been used in so separating such cream in addition to the quantity otherwise there used or disposed of during such period, such fact is conclusive that skim milk or other foreign substance was added to such milk supply within such period and shall be presumptive evidence within the meaning of this section that the same was added to each can or vessel of milk in such shipment. When cream or skim milk is found to have been on the premises of any such station or establishment or is sold or shipped therefrom, such

cream or skim milk so found or so sold or shipped therefrom shall be presumed to have been produced by separating or skimming at such station or establishment. In any action or proceeding relative to the adulteration of milk by removing cream therefrom or adding skim milk or other foreign substance thereto, it shall be presumed that when cream has been produced by so skimming or separating or butter has been manufactured, there was made at least five quarts of milk in the production of each quart of cream so produced and there was necessarily so produced thereby at least four quarts of skim milk to each quart of cream so produced, and that there was used at least nine quarts of milk in the production of each pound of butter so manufactured. If any such person so duly licensed shall thereafter refuse or neglect to keep and preserve full and complete records as herein required or shall refuse to exhibit such records to the commissioner of agriculture, his assistants or agents or shall violate any of the provisions of this section or any of the provisions of this chapter relative to milk or the products thereof he shall forfeit his license and shall be disqualified for a period of five years from being again licensed by the commissioner of agriculture. *(As amended by chapter 408 of the Laws of 1913.)*

Forfeiture
of license.

§ 46. **Unsanitary cans and receptacles condemned.** All cans, or receptacles used in the sale of milk, cream or curd for consumption, or in transporting or shipping the same to market or the delivery thereof to purchasers for consumption as human food, when found by the commissioner of agriculture or his assistants or agents to be in unfit condition to be so used by reason of being worn out, badly rusted, or with rusted inside surface, or unclean or unsanitary or in such condition that they can not be rendered clean and sanitary by washing, and will tend to produce or promote in milk, cream or curd when contained therein, bad flavors, unclean or unwholesome conditions favorable to unhealthfulness or disease, shall be condemned by the commissioner of agriculture or his assistants or agents. Every such can or receptacle when so condemned shall be marked by a stamp, impression or device, designed by the commissioner of agriculture, showing that it has been so condemned, and when so condemned shall not thereafter

Rusted or
unclean
cans.

Marking
condemned
cans.

Further
use of
condemned
cans.

be used by any person for the purpose of so selling, transporting or shipping milk, cream or curd.

§ 47. Receptacles to be cleansed before returning; receptacles may be seized; evidence; violation; milk can inspectors. Whenever any can or receptacle is used for transporting or conveying milk, cream or curd to market for the purpose of selling or furnishing the same for consumption as human food, which can or receptacle, when emptied, is returned or intended to be returned to the person so selling, furnishing or shipping such substance to be again thus used, or which is liable to continued use in so transporting, conveying, selling or shipping such substance as aforesaid, the consumer, dealer or consignee using, selling or receiving the milk, cream or curd from such can or receptacle, shall, before so returning such can or receptacle remove all substances foreign to milk therefrom, by rinsing with water or otherwise. When any such milk, cream or curd is sold within any city of this state or shipped into any such city, the fact of such shipment or sale shall be prima facie evidence that the same was so shipped or sold for consumption as human food. When any such can or receptacle is returned or delivered or shipped to any person or creamery so selling such substance within, or shipping the same into such city, it is deemed that such can or receptacle is liable to such continued use in so selling or shipping such substance therein for consumption as human food within the meaning and purposes of this section and section forty-six. No person shall place or suffer to be placed in any such can or receptacle any sweepings, refuse, dirt, litter, garbage, filth or any other animal or vegetable substance, nor shall any such consignee or other person through himself, his agent or employee, bring or deliver to any person or railroad or other conveyance any such can or receptacle for the purpose of such return, or any milk, cream or curd can or receptacle for the purpose of delivery or shipment to any person or creamery engaged in so selling or shipping such substances for consumption as human food, which can or receptacle contains such foreign substance or which has not been rinsed as herein provided. The word "curd" as used in this section and section forty-six applies to the substance otherwise known as "pot cheese" or "cottage

Cleansing
receptacles.

Evidence.

Cans in
use.

Garbage,
etc., in
cans.

Unwashed
cans.

Curd.

cheese." Whenever any such can or receptacle is used, returned, delivered or shipped in violation of this section, or of section forty-six of this chapter, every such use, return, delivery or shipment of each such can or receptacle shall be deemed a separate violation thereof. Such cans or receptacles so used, returned, delivered or shipped in violation of this section or of section forty-six may be seized by the commissioner of agriculture, his assistants or agents and held as evidence of such violation. For the proper enforcement of this section and section forty-six, the commissioner of agriculture may appoint two milk can inspectors to be stationed chiefly in the city of New York who shall receive the usual compensation of other agents of the department of agriculture. (*As amended by chapter 608 of the Laws of 1911.*)

People v. Freedenberg, 155 App. Div. 199.

§ 48. **Manufacturer's brand of cheese.** Every manufacturer of whole-milk cheese may put a brand or label upon such cheese indicating "whole-milk cheese" and the date of the month and year when made; and no person shall use such a brand or label upon any cheese made from milk from which any of the cream has been taken. The commissioner of agriculture shall procure and issue to the cheese manufacturers of the state, on proper application therefor, and under such regulations as to the custody and use thereof as he may prescribe, a uniform stencil brand or labels bearing a suitable device or motto, and the words, "New York state whole-milk cheese." Every such brand or label shall be used upon the outside of the cheese and shall bear a different number for each separate factory. The commissioner shall keep a book, in which shall be registered the name, location and number of each manufactory using the brands or labels, and the name or names of the persons at each manufactory authorized to use the same. No such brand or labels shall be used upon any other than whole-milk cheese or packages containing the same. (*As amended by chapter 207 of the Laws of 1910.*)

§ 49. **Use of false brand prohibited; branding of skim-milk cheese regulated.** No person shall offer, sell or expose for sale, in any package, butter or cheese which is falsely branded or labeled.

Selling
cheddar
cheese.

No person shall sell, offer or expose for sale cheese commonly known as cheddar cheese made from skimmed or partially skimmed milk unless the same is branded to show that it is skim-milk cheese.

Branding
cheddar
cheese.

All such cheese so sold, offered or exposed for sale shall be branded with the words "skim-milk cheese," or if such cheese contains thirteen per centum of milk fat or over, it may be branded "medium skim-milk cheese," or if it contains eighteen per centum of milk fat or over, it may be branded "special skim-milk cheese." Such branding shall be upon the sides of both the cheese and the container. The branding herein provided shall be in block letters at least one-half an inch square. (*As amended by chapter 456 of the Laws of 1913.*)

Adoption
of county
trade mark.

§ 50. **County trade marks.** At a regular or special meeting of a county dairymen's association in any county of the state there may be adopted a county trade mark, by a majority of the members present and voting, to be used as a trade mark by a person manufacturing pure unadulterated butter or full-cream cheese in such county. The secretary of the association shall forthwith send to the commissioner of agriculture a copy of such trade mark, which copy he shall place on file in his office, noting thereupon the day and hour he received the same. But one county trade mark for butter and for cheese shall be placed on file for the same county. No association shall adopt any trade mark of any county already on file, or use that of any other county in the formation of a trade mark.

Filing
trade mark.

Infringe-
ments.

People v. Luhrs, 195 N. Y. 377.

Deception
in dairy
products.

Preserva-
tion of
public
health.

§ 51. **Object and intent of this article.** This article and each section thereof are declared to be enacted to prevent deception in the sale of dairy products, and to preserve the public health, which is endangered by the manufacture, sale and use of the articles or substances herein regulated or prohibited.

First
violation.

§ 52. **Penalties.** Every person violating any of the provisions of this chapter, shall forfeit to the people of the state of New York the sum of not less than fifty dollars nor more than one hundred dollars for the first violation and not less than one hun-

dred dollars nor more than two hundred dollars for the second and each subsequent violation. When such violation consists of the manufacture or production of any prohibited article, each day during which or any part of which such manufacture or production is carried on or continued, shall be deemed a separate violation. When the violation consists of the sale, or the offering or exposing for sale or exchange of any prohibited article or substance, the sale of each one of several packages shall constitute a separate violation, and each day on which any such article or substance is offered or exposed for sale or exchange shall constitute a separate violation. When the use of any such article or substance is prohibited, each day during which or any part of which said article or substance is so used or furnished for use, shall constitute a separate violation, and the furnishing of the same for use to each person to whom the same may be furnished shall constitute a separate violation. Whoever by himself or another violates any of the provisions of articles three, four, six, eight and nine or sections three hundred fourteen and three hundred fifteen of this chapter or of sections one hundred six, one hundred seven and one hundred eight of this chapter shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than fifty dollars, nor more than two hundred dollars, or by imprisonment of not less than one month nor more than six months or by both such fine and imprisonment, for the first offense; and by six months' imprisonment for the second offense.

Friedgood v. Kline, 67 Misc. Rep. (A. T.) 428, 123 N. Y. Supp. 247; People v. Briggs, 121 App. Div. 927; People v. Briggs, 193 N. Y. 457; People v. Anton Koster, 121 App. Div. 852; People v. Spencer as Trustee, 201 N. Y. 105 (vinegar cumulative penalties); People v. Wiggins, 201 N. Y. 151 (not proper party def't.).

§ 53. **Butterine and similar products not to be purchased by certain institutions.** No money appropriated by law for maintenance and support in whole or in part of a state institution; nor money received by a charitable, benevolent, penal or reformatory institution from the state, or from a county, city or town thereof, or appropriated by such county, city or town for the maintenance or support in whole or in part of such institution; nor money belonging to or used for the maintenance or support of such institution, shall be expended for the purchase of, or in payment for, but-

Second violation.

Separate violation.

Penalties.

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terine, oleomargarine, lard, cheese, or articles or products in imitation or semblance of natural butter or cheese produced from pure unadulterated milk or cream from the same, which articles or products have been rendered or manufactured in whole or in part from animal fats, or animal or vegetable oils not produced from unadulterated milk or cream from the same.

§ 54. **Purchase, sale and use of butterine and similar products prohibited in certain institutions.** No officer, manager, superintendent or agent of an institution mentioned in section fifty-three of this chapter, shall purchase for the use of such institution articles or products, for the purchase of which the money appropriated by law, or by a county, city or town, is forbidden to be used by section fifty-three of this chapter, and no person shall sell to, or for the use of such institution, such articles or products. Nor shall such articles or products be used as articles of food or for cooking purposes in such institutions within this state.

Prohibi-
tion of
purchase
of milk.

§ 55. **Licensing of milk gathering stations where milk is bought.** On and after September first, nineteen hundred and thirteen, no person, firm, association or corporation, shall buy milk within the state for the purpose of shipping the same to any city for consumption or for the manufacture thereof into butter, cheese, condensed milk or other human food, unless such business be regularly transacted at an office or station within the state and unless such person, firm, association or corporation be duly licensed as provided in this and the ensuing sections of this article. Every such person, firm, association or corporation before engaging or continuing in the business of buying milk for the purposes aforesaid, shall, annually, on or before August first, file an application with the commissioner of agriculture for a license to transact such business. The application shall state the nature of the business, as hereinabove set forth, the full name of the person or corporation applying for the license, and, if the applicant be a firm or association, the full name of each member of such firm, or association, the city, town or village and street number at which the business is to be conducted, and such other facts as the commissioner of agriculture shall prescribe. The applicant shall

Applica-
tion for
license to
buy milk.

Statement.
Name.

Address.

further satisfy the commissioner of his or its character, financial responsibility and good faith in seeking to carry on such business. The commissioner shall thereupon issue to such applicant, on payment of ten dollars, a license entitling the applicant to conduct the business of buying milk from dairymen for the purposes aforesaid at an office or station at the place named in the application until the first day of September next following; provided, however, that if the application be presented in the month of July, and if the applicant so elects, such license may be granted to begin on the first day of September next following and run for a term of one year. A license shall not be issued, however, to any applicant if during the year preceding the filing of the application a complaint from any seller of milk shall have been filed with the commissioner against such applicant for any of the grounds specified in section fifty-seven hereof, and such complaint shall have been established as true and just to the satisfaction of the commissioner after such complaint shall have been investigated by the commissioner in the manner provided by section fifty-six hereof.

License fee.

Issuing license.

Ground for refusing to issue license.

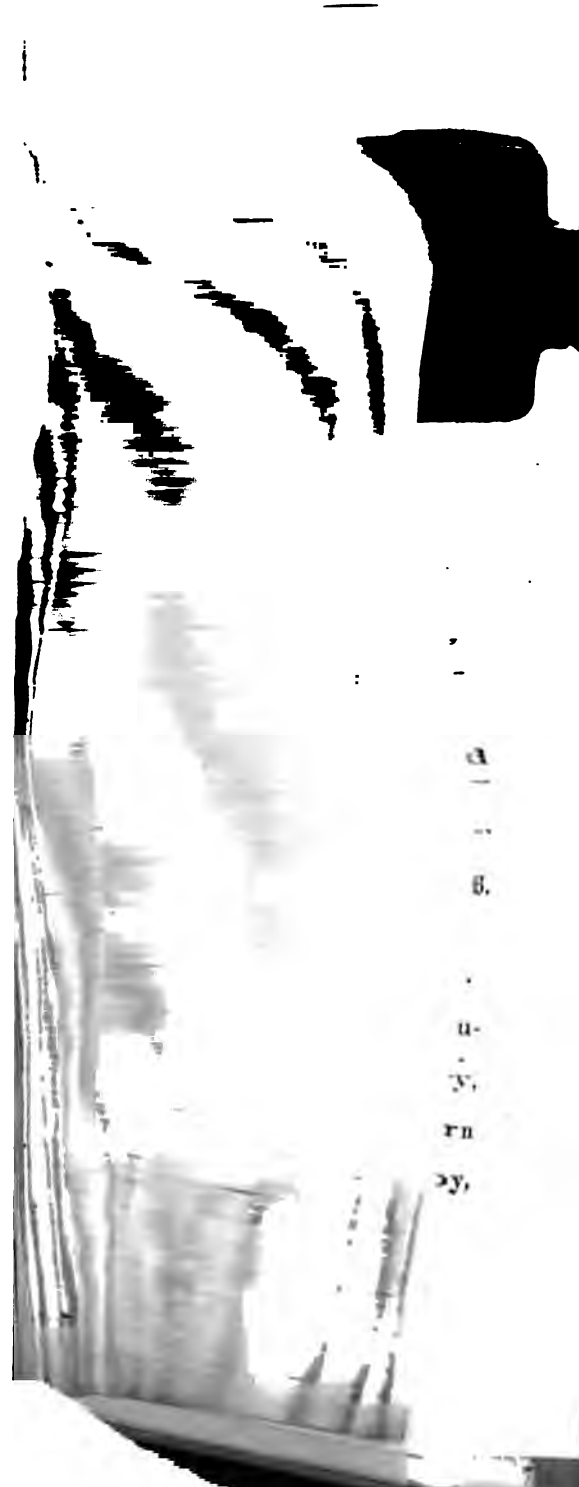
The term "station" or "milk gathering station," as used in this and the ensuing sections of this article, shall include an established office where the business of buying milk as herein provided is carried on, with or without a place or premises in connection therewith for the physical handling of milk. (*As added by chapter 408 of the Laws of 1913.*)

Definition.

§ 56. **Power of commissioner to investigate.** The commissioner and his assistants shall have power to investigate upon the complaint of any interested person, or of his own motion, the record of any person, firm or corporation applying for or holding a license, or any transaction involving the purchase by such applicant or licensee or attempted purchase of milk for shipment as provided in section fifty-five; and for such purpose may examine the ledgers, books of account, memoranda or other documents of any such person, firm, association or corporation applying for or holding a license and may take testimony therein under oath; but information relating to the general business of any such person, firm, association or corporation, disclosed by such investigation

Complaint.

Examination of documents.



and not relating to the immediate purpose thereof shall be deemed of a confidential nature by the commissioner, his assistants, representatives and employees. When a complaint is filed with the commissioner, he shall attempt to secure an explanation or adjustment, and, failing this within ten days, he shall cause a copy of the complaint, together with a notice of the time and place for a hearing thereon, to be served personally or by mail upon said applicant or licensee. If served by mail, such complaint and notice shall be directed to the applicant or licensee at his place of business, with postage fully prepaid thereon. Such service shall be made at least seven days before the hearing. At the time and place appointed for such hearing, the commissioner or his assistants shall hear the parties to the complaint, shall have power to administer oaths and shall enter in the records of the office of the commissioner of agriculture a decision either dismissing such complaint or specifying the facts which he deems established on such hearing. (*As added by chapter 408 of the Laws of 1913.*)

Adjustment.

Service of notice.

Time and place of service.

Hearing.

§ 57. Granting and revoking licenses. The commissioner of agriculture may decline to grant a license or may revoke a license already granted when he is satisfied of the existence of the following cases or either of them:

Judgment against applicant.

1. Where a money judgment has been secured by any milk producer and has been entered against such applicant or licensee and remains unsatisfied of record.

Intent to defraud vendor.

2. Where there has been a failure to make prompt settlements to persons from whom he buys milk, with intent to defraud.

Combinations.

Intent to defraud customers.

3. Where there have been combinations to fix prices.

4. Where there has been a continual course of dealing of such nature as to satisfy the commissioner of the inability of the applicant or licensee to properly conduct the business or of an intent to deceive or defraud customers.

5. Where there has been a continued and persistent failure to keep records required by the commissioner or by law. (*As added by chapter 408 of the Laws of 1913.*)

§ 58. Certiorari to review. The action of the commissioner of agriculture in refusing to grant a license, or in revoking a license

granted under section fifty-five, shall be subject to review by writ of certiorari, and if such proceedings are begun to review the revocation of license, the license shall be deemed to be in full force and effect until the final determination of certiorari proceedings and all appeals therefrom, or if such license shall have been refused the applicant for a license shall not be deemed to have violated the provisions of section fifty-five, prohibiting the transaction of the business therein specified without a license if the fee for such license shall have been paid. (*As added by chapter 408 of the Laws of 1913.*)

License to remain in force.

§ 59. **Records to be kept.** Every licensed proprietor of a milk gathering station shall keep, in such form as the commissioner of agriculture may prescribe, a record of transactions of purchases of milk by him. (*As added by chapter 408 of the Laws of 1913.*)

§ 60. **Right to review.** If either party to the transaction of purchase and sale between a milk producer or a milk seller and a licensed buyer of milk shall be dissatisfied relative to any transaction of purchase and sale of milk between a milk seller and a licensed buyer of milk, he may apply to the commissioner of agriculture, in writing, within sixty days after the delivery of such milk to the licensed buyer, for investigation. The commissioner of agriculture shall treat such application as a complaint, and shall cause a full investigation of the transaction complained of to be made either by himself or one of his assistants, in the manner provided by section fifty-seven. (*As added by chapter 408 of the Laws of 1913.*)

Dissatisfied party may apply for investigation.

§ 61. **Offenses.** Any person who, being a buyer of milk for shipment for the purposes set forth in section fifty-five, whether such person be licensed or whether his business be transacted at a station or otherwise, shall (a) fail to make prompt payments for milk purchased, with intent to defraud, or (b) shall make any false or misleading statement or statements enumerated in sections fifty-five to fifty-nine inclusive, with intent to deceive, or (c) enter into any combination to fix prices, or (d) not being licensed, shall conduct the business of buying milk for shipment

~~as provided in section fifty-five, or (e) being licensed or otherwise, engaged in such business without having a station or office there-
 in, or (f), fails to conform to any requirement of or violates any
 provision of sections fifty-five to fifty-nine, inclusive, with intent
 to receive a order of milk, shall be guilty of a misdemeanor. (As
 added by chapter 408 of the Laws of 1913.)~~

~~§ 62. See note.~~

~~§ 63. See note.~~

~~§ 64. See note.~~

~~Note.~~ - These sections did not become law.

~~Note.~~ Section 64-a follows section 95.

ARTICLE 5

Diseases of Domestic Animals

Section 90. Suppression of infectious and contagious disease.

91. Commissioner to issue notice.
92. Farms to be quarantined; inspection of premises.
93. Detention and destruction of animals.
94. Care of diseased animals; experiments.
95. Employment of veterinary surgeons.
- *64-a. Tuberculin, issuing certificates relative to tuberculin tested cattle, branding of tuberculous animals.
96. Regulations, the enforcement thereof and expenses incurred by sheriff.
97. Fines and penalties.
98. Bureau of veterinary service; chief veterinarian; appraisers.
99. Appraisal of diseased animals.
100. Certificate of appraisal.
101. Post-mortem examination of animals.
102. Compensation of owners of animals destroyed.
103. Expenses.
104. Federal regulations. (Repealed by chapter 232 of the Laws of 1909.)
105. Rights of federal inspectors. (Repealed by chapter 232 of the Laws of 1909.)
106. Shipping, slaughtering and selling veal for food.
107. Shipping veal.
108. Receiving veal for shipment by common carriers.

§ 90. Suppression of infectious and contagious diseases. No person shall knowingly bring any domestic animal into this state which is suffering with an infectious or contagious disease. Any person knowingly bringing a domestic animal suffering with an infectious or contagious disease into this state shall be liable to and shall pay all damages, suffered or caused by the spreading of such disease, to the owner or owners of animals to which such disease is imparted by such animal or animals so brought in, as liquidated damages in addition to the penalties to the state of New York,

Willful importation of diseased animals.

Damage for violation.

Interstate traffic.

* So numbered in original.

as provided in section fifty-two of the agricultural law; provided that nothing herein contained shall be construed to prevent or make unlawful the transportation of such animals through this state on railroads or boats. Any person bringing into the state such animals which are used for breeding, feeding or dairy purposes without taking due precaution to ascertain whether such animals are suffering with such a disease shall be presumed to have brought them in knowingly and in violation of the statute.

Due precaution. Under the foregoing provisions of this section, any animals, received from outside the state and distributed under the supervision of the United States department of agriculture or the state department of agriculture and for which a permit or certificate has been issued by either of said departments, shall be deemed to have been handled with due precaution. Whenever any infectious or contagious disease affecting domestic animals shall exist, be brought into or break out in this state the commissioner of agriculture shall take measures to promptly suppress the same, and to prevent such disease from spreading. The local boards of health shall notify the commissioner of the existence of infectious or contagious disease affecting domestic animals in the districts subject to their jurisdiction. Any person importing or bringing into this state neat cattle for dairy or breeding purposes shall report immediately upon bringing such cattle into the state to the commissioner of agriculture in writing, giving a statement of the number of cattle thus brought in, the place where they were procured, the lines over which they were brought and their point of destination within the state, stating when they will arrive at such point of destination, and upon the filing with the commissioner of agriculture at the time of making the said report, a certificate issued by a duly authorized veterinary practitioner, to the effect that he has duly examined said animals and that said animals are free from any infectious or contagious disease, the commissioner of agriculture may issue a permit to said person to remove said cattle immediately. Otherwise, said person shall hold or detain such animals at least ten days at such point of destination for inspection and examination, provided they are not sooner examined or inspected, by the commissioner of agriculture or his duly authorized agent. Each animal brought into

Prompt action required.

Boards of health to notify commissioner.

Report of cattle imported.

Permit to remove.

Detention for inspection.

the state in violation of the above provisions shall constitute a ^{Separate violation.} separate and distinct violation of this chapter. The provisions of this section, relating to the importation of neat cattle for dairy ^{Exceptions.} or breeding purposes, shall not apply to cattle imported into this state at a point where there is federal inspection, so far as the same shall relate to making advance reports to the commissioner of agriculture. But parties importing or receiving such cattle at such places shall give such information to the commissioner of ^{Information to commissioner.} agriculture as he may from time to time request relative to such cattle so imported or brought in. (*As amended by chapter 240, § 1, and chapter 312 of the Laws of 1909.*)

§ 91. Commissioner to issue notice. He shall issue and publish a notice, stating that a specified infectious or contagious disease exists in the state or in any designated county or other geographical district of the state, and warning all persons to seclude in the ^{Seclusion of animals.} premises where they may be at the time, all animals within the state or within such county or district or an adjoining county or district, that are of a kind susceptible to contract such disease, and ordering all persons to take such precaution against the spreading of the disease, as the nature thereof may in his judgment render necessary or expedient, and which he may specify in such notice. Such notice shall be published in such newspapers, and ^{Publishing notices.} be posted in such manner as the commissioner may designate, and as, in his judgment, are most likely to give notice thereof. For this purpose he may post notices on public service poles other than ^{Posting notices.} those carrying wires transmitting electricity for light or power or fences upon the highway or buildings abutting upon the highway, provided, if such fences or buildings are privately owned, the owners thereof shall consent to such posting. No person shall ^{Destroying notices.} tear down, mutilate, deface or destroy any such notice or order issued by the commissioner of agriculture and posted as provided herein during the pendency of said order or notice. (*As amended by chapter 313 of the Laws of 1909.*)

§ 92. Farms to be quarantined; inspection of premises. The commissioner or an assistant commissioner or the chief veterinarian, shall order any premises, farm or farms where such dis-

Quarantine.

ease exists, or recently existed, to be put in quarantine, so that no domestic animal be removed from or brought to the premises or places quarantined, and shall prescribe such regulations as he may judge necessary or expedient to prevent the communication of the disease by infection or contagion, in any way from the places so quarantined. The commissioner may adopt and enforce rules regulating the sanitation of stables and other buildings used for the stabling of cattle for the purpose of preventing the existence and spread of infection and contagion among cattle. He may provide for the inspection and examination of all such stables and buildings. (*As amended by chapter 315 of the Laws of 1909.*)

Sanitation of stables.

Inspection of stables.

Detention of animals entering the state.

Disposal of hides, etc.

Destruction of animals.

Tuberculosis.

Physical examination.

Tuberculin test.

§ 93. **Detention and destruction of animals.** The commissioner or an assistant commissioner or the chief veterinarian may order all or any animals coming into the state to be detained at any place or places for the purpose of inspection and examination. The commissioner may prescribe regulations for the destruction of animals affected with infectious or contagious disease, and for the proper disposal of their hides and carcasses, and of all objects which might carry infection and contagion. Whenever in his judgment necessary for the more speedy and economical suppression or prevention of the spread of any such disease, he may cause to be slaughtered, and to be afterward disposed of, in such manner as he may deem expedient, any animal or animals, which, by contact or association with diseased animals, or by other exposure to infection or contagion, may be considered or suspected to be liable to contract or communicate the disease sought to be suppressed or prevented. The commissioner may direct that an animal shall be condemned, quarantined or slaughtered as tuberculous, under the provisions of this article, if it shall be found to be tuberculous by a physical examination. If the owner of animals suspected of being tuberculous desires to have such animals tested with tuberculin and enters into written agreement with the state in the manner prescribed by the commissioner of agriculture, before such test is made, to the effect that he will disinfect his premises and either consent to the slaughter of the animals responding to such test, or hold them and their products in strict quarantine, pursuant to the directions of the commissioner of agriculture,

such test shall be made by a medical or veterinary practitioner designated by the commissioner. The commissioner may also in his discretion order such tuberculin test to be made, and if the animal responds to such test, he may cause such animal to be slaughtered or held in strict quarantine. (*As amended by chapter 315 of the Laws of 1909.*)

§ 94. Care of diseased animals; experiments. If after examination an animal is, in the judgment of the person making the examination, suffering from tuberculosis, such animal shall be slaughtered under the provisions of this article, or, if the commissioner deems that a due regard for the public health warrants it, he may enter into a written agreement with the owner, subject to such conditions as the commissioner of agriculture may prescribe, for the separation and quarantine of such diseased animal or animals. Subject to the regulations of the department of agriculture, such diseased animal or animals may continue to be used for breeding purposes and its or their milk, after pasteurization at one hundred and eighty-five degrees Fahrenheit, may be used for the manufacture of butter or cheese or for sale. The young of any such diseased animal or animals shall, immediately after birth, be separated from their mothers, but may be fed the milk drawn from such affected animal or animals so separated and quarantined after such milk has been pasteurized as herein provided. The owner of a herd of cattle, within the state, may apply to the commissioner of agriculture for examination of his herd by the tuberculin test; said application to be in writing upon a blank form provided by the commissioner of agriculture and to include an agreement on the part of the owner or owners of the herd to improve faulty sanitary conditions; to disinfect his premises, should diseased cattle be found, and to follow instructions of the commissioner of agriculture designed to prevent the reinfection of the herd and to suppress the disease or prevent the spread thereof. The commissioner of agriculture shall, as soon as practicable, cause such cattle to be examined accordingly, subject to the provisions of this chapter. When the commissioner deems that the conditions warrant it he may make and issue to such owner a certificate that upon such examination such herd was found free from tuberculosis or that the owner has complied

Slaughter
or quaran-
tine.

Quaran-
tined
animals.

Young of
animals
diseased

Applica-
tion for
tuberculin
test.

Certificate
of health
of herd.

Place of
slaughter.Experi-
ments.Sale of
diseased
animals.Substitute
for tuber-
culin.Assist-
ants.Compensa-
tion.Animals
destroyed
only on
certificate
of veteri-
narian.

with the provisions of this section by causing all affected animals to be separated from the herd and quarantined as provided herein subject to the regulations of the department of agriculture. The commissioner of agriculture may determine the place of slaughter of an animal to be killed under the provisions of this chapter. The commissioner may experiment or cause such experiments to be made or performed as he may deem necessary to ascertain or determine the best methods or means for the control, suppression or eradication of communicable or infectious disease or diseases affecting domestic animals. No person shall sell any animal known to have a communicable or infectious disease except for immediate slaughter unless such sale be made under a written contract signed by both parties specifying the disease with which such animal is infected, a copy of which shall be filed in the office of the commissioner of agriculture. No person shall knowingly inject into any bovine animal as and for tuberculin any substance which is not tuberculin.

§ 95. Employment of veterinary surgeons. The commissioner may employ such and so many medical and veterinary practitioners and such other persons as he may, from time to time, deem necessary to assist him in discharging the duties imposed upon him by this article, and may fix their compensation, to the amount appropriated therefor. No animal shall be destroyed by the commissioner or by his order on the ground that it is a diseased animal, unless first examined by a veterinary practitioner in the employ of the commissioner or whose work is approved by the commissioner, nor until such practitioner renders a certificate to the effect that he has made such examination, that in his judgment such animal is affected with a specified infectious or contagious disease, or that its destruction is necessary in order to suppress or aid in suppressing such disease, or to prevent such disease, or to prevent the spread thereof, specifying the reasons for such necessity. (*As amended by chapter 316 of the Laws of 1909.*)

***§ 64-a. Tuberculin, issuing certificates relative to tuberculin tested cattle, branding of tuberculous animals.** Any person using

* This section erroneously numbered 64-a; apparently intended to follow § 95, which was § 64 of former Agricultural Law.

or injecting tuberculin into bovine animals for the purpose of determining whether they are affected with the disease known as tuberculosis, shall take the temperatures of such animals before, during and after such injections, according to the most approved methods, shall keep a correct record of such temperatures so taken and shall send a report within one week thereafter to the commissioner of agriculture giving a detailed account of the tests thus made, including the description of animals, the location of the farm or farms upon which tests were made and the name and address of the owner or custodian, and such other information concerning the use of tuberculin as may be called for by the commissioner of agriculture. A report of each such test so made shall be accompanied by a statement of the owner or person in charge giving the date upon which the said animals were last tested, if at all, and if known, with tuberculin, and the name and address of the person or persons making such test. If no such test has been made within four weeks, or if the animals were not treated in any manner for the purpose of preventing their normal reaction to tuberculin, then the report shall be accompanied by a statement setting forth such facts and the said statement shall be duly verified by the person making such statement. No person shall give a certificate showing or tending to show that an animal has been tested and found not affected with tuberculosis, unless the character of such test is stated and it was made in a proper way, and unless such animals failed to give a typical reaction. Any bovine animal in which tuberculosis is clearly diagnosed by a physical examination or a tuberculin test, or both, shall be branded upon the forehead or upon the right side of the neck from six to ten inches back of the jaw bone with a capital "T" not less than two inches high, one and one-half inches wide, with mark one-fourth of an inch wide; such branding shall not be construed as cruelty to animals within the meaning of the penal law; however, any animal which has reacted to the tuberculin test and appears physically sound may be retained for breeding or dairy purposes without such branding, provided a full description of such animal, sufficient for its identification and satisfactory to the commissioner of agriculture, is furnished to the commissioner of agriculture and a permit from said commissioner is issued for keeping such ani-

Taking
tempera-
ture.

Record of
tempera-
tures.

Report to
commis-
sioner.

Previous
test.

Certificate.

Branding
tuberculous
animals.

Exceptions.



Issuing permit for exemption.

Label for tuberculin.

Report of distribution of tuberculin.

Tuberculin accounted for.

Treatment to prevent reaction.

Sale of reacting animals.

mal in such manner. Such permit shall not be issued except upon the condition that the animal will thereafter be kept in a proper manner with regard to the protection of the public health and the health of other animals, and no such animal shall be sold or removed from the premises without written permission from the commissioner of agriculture, and all such animals shall be accounted for by the owner or custodian whenever called upon by the commissioner of agriculture to do so. All tuberculin sold, given away or used within this state, shall bear a label stating the name and address of the person or firm or institution making it and the date of preparation. All persons selling or giving away tuberculin shall report to the commissioner of agriculture the amount of tuberculin sold or given away, the degree of strength, the name and address of the person to whom sold or given and the date of delivery; said report shall include the address of and be signed by the person making it. Persons buying or procuring tuberculin shall not use or dispose of it until assured in writing by the person from whom the tuberculin is received that its delivery to said person has been reported to the commissioner of agriculture or unless they have themselves reported its receipt to the commissioner of agriculture with information required to be furnished by those who distribute tuberculin, and such persons buying or procuring tuberculin shall keep a correct record of the amount received, the amount used and the amount on hand and shall report these facts whenever any tuberculin is used, and if at any time tuberculin left on hand is not deemed fit for use or is not to be used, the said person shall forward the same to the commissioner of agriculture with a statement of where and when procured, the amount procured at the time, the amount of it that was used, and his name and address. If the amount forwarded to the commissioner of agriculture and the amount used does not total the amount procured or purchased a statement shall be made as to what became of the remainder. No person or persons shall treat any bovine animal with any material or substance nor in any manner for the purpose of preventing a normal reaction on the part of such animal to the tuberculin test. No person shall knowingly sell or offer for sale any animal that has reacted to the tuberculin test, without giving information of such reaction to the purchaser. No

animal that has reacted to the tuberculin test shall be sold or re-
 moved from the premises where the test was made without per-
 mission in writing from the commissioner of agriculture. Any
 veterinary surgeon violating any of the provisions of this section
 shall, in addition to the penalties and fines prescribed in the
 agricultural law, forfeit his certificate to practice and thereafter
 be debarred from practicing his profession within the state of
 New York until such disability is legally removed. (*As added
 by chapter 588 of the Laws of 1909.*)

§ 96. Regulations, the enforcement thereof and expenses in-
 curred by sheriff. The commissioner may prescribe such regula-
 tions as in his judgment may be thought suited for the suppression
 or the prevention of the spread of any such disease, and for the
 disinfection of all premises, buildings, railway cars, vessels, and
 other objects from or by means of which infection or contagion
 may take place or be conveyed. He may alter or modify, from
 time to time, as he may deem expedient, the terms of all notices,
 orders and regulations issued or made by him, and may at any
 time cancel or withdraw the same. He may call upon the sheriff,
 under sheriff or deputy sheriff, to carry out and enforce the provi-
 sions of any notice, order or regulation which he may make, and all
 such sheriffs, under sheriffs and deputy sheriffs shall obey and ob-
 serve all orders and instructions which they may receive from him
 in the premises. In all counties, the expenses incurred by the
 sheriff, under sheriff or a deputy sheriff in carrying out and en-
 forcing the provisions of such notice, order or regulation shall be a
 county charge, to be audited and paid in the same manner as other
 charges by the sheriff, under sheriff or deputy sheriff, including
 in this requirement any county affected by a local or special
 act relating to the sums payable by the county for compensation
 or disbursements, or both, to its sheriff, under sheriff or any
 deputy sheriff; and no such local or special act shall be effectual
 to prevent the payment of the expenses herein made a county
 charge over and above any other sum or sums, fixed or otherwise,
 provided in such act to be paid by the county to the sheriff, under
 sheriff or deputy sheriffs for compensation or to cover expenses, or
 both, and notwithstanding any provision of any such act relieving

Removal.

Penalties.

Regula-
 tions for
 suppres-
 sion of
 disease.

Modifica-
 tion of
 notice.

Sheriff to
 enforce.

Expense in-
 curred by
 sheriff.

the county from charges imposed by law which are incurred by its sheriff, under sheriff or a deputy sheriff. If the commissioner shall lay a quarantine upon a city or any portion thereof he may call upon the commissioner of public safety and the police department of said city to enforce the provisions of any notice, order or regulation which he may make within the quarantine district or such portion thereof as lies within the city limits, and the commissioner of public safety and the police department shall obey and observe all such orders and instructions so made or issued, and all expenses incurred by the commissioner of public safety and the police department in enforcing the quarantine as herein provided shall be a city charge. If the commissioner shall quarantine any particular district or territory for the purpose of stopping or preventing the spread of the disease known as rabies, and if any dog be found within the said quarantine district in violation of said quarantine or regulation, any person may catch or cause to be caught such dog and have him impounded or confined. If the said dog is thereafter not found to be affected with the disease known as rabies, it may be released to the owner upon payment of a penal sum of ten dollars to the commissioner of agriculture, who shall upon receipt and acceptance of the same issue to the said owner a release which shall entitle the said owner to the possession of said dog. If such penalty is not paid within three days after said dog is impounded, or if it is found impracticable after reasonable effort to catch and impound such dog within the said quarantine district in violation of said quarantine or regulation, or to find the owner of a dog so impounded, then any person may kill or cause to be killed such dog and shall not be held liable for damages for such killing. For the purpose of enforcing the provisions of this article the commissioner of agriculture, his appointees and employees shall be considered as peace officers and shall have all the rights and powers of peace officers. (*As amended by chapter 255 of the Laws of 1911.*)

Police to enforce.

Expense incurred by police.

Dogs in violation of quarantine.

Release.

Provisions for killing

Powers of peace officers.

¹People ex rel. Baumann v. Lyon, 77 Misc. 377; 136 N. Y. Supp. 554.

Fines.

§ 97. **Fines and penalties.** Any person violating, disobeying or disregarding the term of any notice, order or regulation issued or prescribed by the commissioner under this article shall forfeit to

the people of the state the sum of not less than fifty dollars nor more than one hundred dollars for every such violation. Any person violating, disobeying or disregarding the terms of any notice, order or regulation issued or prescribed by the commissioner under this article shall be guilty of a misdemeanor and shall be fined not less than fifty dollars nor more than one hundred dollars for each separate offense or by imprisonment of not less than one month nor more than six months, or by both such fine and imprisonment, except that in the case of rabies he shall be fined not less than ten dollars nor more than one hundred dollars for each offense or by imprisonment of not less than one month *not more than six months, or by both such fine and imprisonment. (As amended by chapter 352 of the Laws of 1909.)

Penalties.

Rabies violation.

People v. Shields, 142 App. Div. 194.

§ 98. Bureau of veterinary service; chief veterinarian; appraisers. There is hereby established in the department of agriculture a bureau of veterinary service. The bureau shall be in charge of a chief veterinarian, who shall be an experienced veterinarian appointed by the commissioner of agriculture. He shall receive an annual salary of three thousand dollars and all necessary traveling and other expenses incurred in the performance of his duties. Such chief veterinarian or other veterinarians employed by the commissioner shall have all the powers of an appraiser of condemned animals under this article. The chief veterinarian shall, under the direction of the commissioner of agriculture, have general charge of the enforcement of the provisions of this article, and shall collect and disseminate through farmers' institutes or otherwise, as the commissioner may direct, information and statistics in relation to the diseases of domestic animals, the proper care and sanitation of stables and other buildings used for the stabling of farm animals for the purpose of preventing the existence and spread of infectious and contagious diseases, the methods of feeding, the methods of improving the breed or milking qualities of cattle, and such other matters as the commissioner may direct. All veterinarians in the state shall immediately report to the commissioner of agriculture the existence among animals of any in-

Chief veterinarian.

Appointment.
Compensation.

Duty and powers of veterinarians.

Report of disease.

* So in the original.

Conceal-
ment of
disease.

Confi-
dential
agents.

State ap-
praiser.

Additional
appraisers.

fectious or communicable disease coming to their knowledge. The report shall be made in writing and shall include a description of the diseased animal or animals, the name and address of the owner or person in charge of the animal, if known, and a statement as to the location of the animal. No person shall conceal or attempt to conceal any animal suffering from an infectious or communicable disease so that the same shall not come to the knowledge of the commissioner of agriculture. The commissioner of agriculture may appoint and at pleasure remove two confidential agents at salaries not to exceed eighteen hundred dollars, to be fixed by the commissioner, to assist in carrying out the provisions of this article. He may appoint and at pleasure remove one state appraiser of condemned animals, who shall be a person of experience and well acquainted with the value of farm animals; and shall receive an annual salary of fifteen hundred dollars, and all necessary traveling and other expenses incurred in the performance of his duties. The commissioner of agriculture may employ from time to time such additional appraisers of condemned animals as the work of his department may necessitate, who shall receive compensation at the rate of five dollars per diem and all traveling and other expenses necessarily incurred while engaged in the performance of their duties.

Appraised
value.

Arbitra-
tion of
value.

§ 99. **Appraisal of diseased animals.** An appraiser shall determine the value of each animal directed to be slaughtered. Such value shall be the market value of such animal at the time of making the appraisal, but the appraisal value of each bovine animal shall not exceed the sum of one hundred and twenty-five dollars, provided however that the appraised value shall not exceed the sum of seventy-five dollars, except for registered thoroughbred animals, and the appraisal of each equine animal shall not exceed the sum of one hundred and twenty dollars. If the value of the condemned animals determined by the appraiser is not satisfactory to the owner of such animals, the value shall be determined by arbitrators, one to be appointed by the state appraiser and one by the owner of the animals. If such arbitrators are not able to agree as to the value of the animals, a third arbitrator shall be appointed by them. The value determined by such arbitrator

shall not exceed the limits established by this article and, after approval by the commissioner of agriculture, shall be final. The arbitrators selected by the owner of the animals shall be paid by the said owner, the other arbitrator or arbitrators shall be paid by the state at a rate of compensation not to exceed five dollars per day and necessary expenses. Such appraiser of condemned animals and the arbitrators appointed under this section may administer oaths to and examine witnesses. (*As amended by chapter 314 of the Laws of 1909 and by chapter 670 of the Laws of 1910.*)

Payment
of arbit-
rators.

Powers of
arbitrators.

§ 100. **Certificate of appraisal.** The appraiser shall execute and deliver to the owner of the condemned animals a certificate verified by him stating the appraised value of such animals; if such value was determined by arbitrators, there shall be attached to such certificate a statement of the value so determined, signed and verified by at least two of the arbitrators. The form and contents of such certificates shall be prescribed by the commissioner of agriculture.

Certificate.

Statement
of value.

Form and
contents.

§ 101. **Post-mortem examination of animals.** All animals suspected of being tuberculous or glandered, and killed therefor, shall be examined by a medical or veterinary practitioner designated by the commissioner for the purpose of determining whether or not such disease existed in such animals. There shall be attached to the certificate of appraisal, a statement of the result of such examination, describing the animals found to be tuberculous or glandered and those which were found not to be tuberculous or glandered. The form of such statement shall be prescribed by the commissioner of agriculture. Such statement shall be verified by the veterinary or medical practitioner making the examination. (*As amended by chapter 314 of the Laws of 1909.*)

Post-
mortem ex-
amination.

Statement
of result.

Form of
statement.

Verifica-
tion of
statement.

§ 102. **Compensation of owners of animals destroyed.** The actual appraised value at the time they are killed of all animals killed under the provisions of this article, which shall be found upon a post-mortem examination not to have had the disease for which they were killed, unless the same were killed on account of

Payment
when not
diseased.

Payment when diseased.	the violation of quarantine regulations, shall be paid to the owners of such animals. If such animals are found, upon post-mortem examination, to have been suffering from glanders then they shall
Glanders.	be paid for in the manner following: If an animal has glanders, not manifest by clinical symptoms, the owner thereof shall be paid eighty per centum of the appraised value. If the animal has glanders showing clinical symptoms, the owner thereof shall be paid therefor fifty per centum of the appraised value. If such animals are found upon post-mortem examination to have been suffering from tuberculosis, then they shall be paid for in the manner following, to wit: If an animal has localized tuberculosis, the owner thereof shall be paid eighty per centum of the appraised value. If the animal has generalized tuberculosis, the owner thereof shall be paid therefor fifty per centum of the appraised value, but no animal slaughtered under the provisions of this article shall be paid for as herein provided, unless the said animals shall have been within the state for a period of at least six months if suffering from tuberculosis or twelve months if suffering from glanders. If the meat of the slaughtered bovine animal shall be passed for use as food, under official regulations, the commissioner of agriculture is hereby authorized to sell the same and the proceeds from the sale of the meat, hide and other marketable parts of the said animal shall be paid into the state treasury. For each and every day the owner or custodian of the animals condemned is obliged to keep them, in excess of seven days from the date of the condemnation, he shall be allowed and paid the sum of twenty-five cents per day per head. The certificate of appraisal, and the statement of the result of the post-mortem examination, shall be presented by the owner or his legal representatives or assigns, to the commissioner of agriculture. The commissioner of agriculture shall issue his order for the amount due as shown by such certificate and statement, after he has found them to be correct, which shall be paid by the state treasurer on the warrant of the comptroller out of moneys appropriated therefor. No compensation shall be made to any person who has wilfully concealed the existence of disease among his animals or upon his premises, or who in any way by act or by wilful neglect has contributed to spread the disease sought to be
Tubercu- losis.	
Disposal meat.	
Payment for keeping condemned animals.	
Refusal of com- pensation.	

§ 106. Shipping, slaughtering and selling veal for food. No Sale of calves.

any person shall slaughter or expose for sale, or sell any calf or carcass of the same or any part thereof, unless it is in good healthy condition. No person shall sell or expose for sale any such calf or carcass of the same or any part thereof, except the hide, unless it was, if killed, at least four weeks of age at the time of killing. No person or persons shall bring or cause to be brought into any city, town or village any calf or carcass of the same or any part thereof for the purpose of selling, offering or exposing the same for sale, unless it is in a good healthy condition, and no person or persons shall bring any such calf or carcass of the same or any part thereof except the hide into any city, town or village for the purpose of selling, offering or exposing the same for sale, unless the calf is four weeks of age, or, if killed, was four weeks of age at the time of killing, provided, however, that the provisions of this section shall not apply to any calf or carcass of the same or any part thereof, which is slaughtered, sold, offered or exposed for sale, for any other purpose than food. Any person or persons exposing for sale, selling or shipping any calf or carcass of the same will be presumed to be so exposing, selling or shipping the said calf or carcass of the same for food. Any person or persons shipping any calf for the purpose of being raised, if the said

Shipment of calves.

Presumption.

Method of shipping.

Calves for
fertilizer
purposes.

Seizure of
calves
and veal.

Penalties.

calf is under four weeks of age, shall ship it in a crate, unless said calf is accompanied by its dam. Any person shipping calves under four weeks of age for fertilizer purposes must slaughter the said calves before so shipping. Any person or persons duly authorized by the commissioner of agriculture may examine any calf or veal offered or exposed for sale or kept with any stock of goods apparently exposed for sale, and if such calf is under four weeks of age, or the veal is from a calf killed under four weeks of age, or from a calf in an unhealthy condition when killed, he may seize the same and cause it to be destroyed and disposed of in such manner as to make it impossible to be thereafter used for food.

The penalties and fines provided in section fifty-two of the agricultural law shall apply to violations of this section except that the minimum penalty for violations of this section shall be, for the first violation, one dollar for each calf, and, for the second violation, ten dollars for each calf, and the minimum fine for first offense shall be one dollar and for second offense ten dollars. *(As amended by chapter 561 of the Laws of 1910.)*

People v. Bishopp, 106 App. Div. 266, 94 N. Y. Supp. 773, 128 N. Y. St. Rep. 773; *People v. Dennis*, 114 N. Y. Supp. 7; *People v. Sayre* (not reported); *People v. Wright*, 103 App. Div. 218, statute presumptively constitutional; *Williams v. Rivenburg*, 129 N. Y. Supp. 473.

§ 107. **Shipping veal.** It shall be unlawful for any corporation, partnership, person or persons to ship to or from any part of this state any carcass or carcasses of a calf or calves or any part of such carcass except the hide, unless they shall attach to every carcass or part thereof so shipped, in a conspicuous place, a tag, that shall stay thereon during such transportation, stating the name or names of the person or persons who raised the calf, the name of the shipper, the points of shipping and the destination and the age of the calf.

§ 108. **Receiving veal for shipment by common carriers.** No railroad company, express company, steamboat company or other common carrier, shall carry or receive for transportation any carcass or carcasses of calves, or any part of the same except the hide, unless the said carcass or carcasses or parts thereof shall be tagged as herein provided.

LAW RELATING TO WEIGHTS AND MEASURES

Chapter 25 of the Laws of 1909, being chapter 20 of the Consolidated Laws as amended by the Laws of 1913.

§ 5-a. **Bottles or jars for milk and cream.** Bottles used for the sale of milk and cream shall be of the capacity of half gallon, three pints, one quart, one pint, half pint and one gill, filled full to the bottom of the cap ring or stopple. The following variations on individual bottles or jars may be allowed: six drams above and six drams below on the half gallon; five drams above and five drams below on the three pint; four drams above and four drams below on the quart; three drams above and three drams below on the pint; two drams above and two drams below on the half pint, and two drams above and two drams below on the gill. Bottles or jars used for the sale of milk shall have clearly blown, or otherwise permanently marked, in the sides or bottom of the bottle the name, initials or trademark of the manufacturer and a designating number, which designating number shall be different for each manufacturer and may be used in identifying the bottles. The designating number shall be furnished by the state superintendent of weights and measures upon application by the manufacturer, and a record of the designating numbers and to whom furnished shall be kept in the office of the superintendent of weights and measures.

THE COUNTRY MILK SITUATION IN NEW YORK STATE

EDWARD VAN ALSTYNE, Kinderhook, N. Y.

Director of Farmers' Institutes



Conditions in New York are not radically different from any other eastern state where dairying is a leading industry; where there are towns or cities to be supplied either nearby or remote; and where the growing demand for market milk, together with increased and better shipping facilities, make it possible to reach out hundreds of miles into the interior, so that each year more of the product of the dairy is sold as milk than is manufactured. Because New York is typical and this article is prepared for a state bulletin, I shall confine myself within the bounds of the state — and they are ample.

The tables on the final pages of this bulletin give a general idea of the magnitude of this industry. The figures shown as taken from the United States Census are in some cases misleading and inadequate. The general situation in the state has not materially changed in the past five years, except for a gradual increase in the sale of whole milk and a corresponding decrease in articles manufactured from it. See table No. 2. It will be noticed that in 1908 there was received at the milk stations 745,555,809 quarts, of which 582,963,174 — more than two-thirds — were sold as milk. These figures do not take into account the immense amount sold in small towns and that shipped direct to interior cities. New York is and will continue to be a milk producing state.

EVOLUTION OF RAILROAD TRANSPORTATION

The first train classed as a milk train was run over the Erie railroad from Orange county to New York City in 1847. Less than

twenty-five years ago a large proportion of New York City's milk from the country was sent direct from the farms to independent dealers. The railroads within a hundred miles or more from the city ran milk trains which stopped at the stations along their lines and gathered the milk from the platforms where it had been left by the farmers. No attempt was made to ice the cars, and in the majority of cases very little was done by the dairyman to insure a good article. In the light of present-day conditions it was wonderful how so much of it was merchantable. Consumers did not expect their milk to be sweet very long after it was received. The independent dealers referred to had very inadequate means of caring for or handling the milk and their methods of distribution were crude and expensive. The majority of them had no financial standing. Generally the farmer did not know what he was to get until he received his check. Sometimes it came promptly at the end of the month, more often after a long delay which made the heart sick. It was not an infrequent occurrence for a farmer to lose the returns for two or three months' milk, owing to his dealer going out of business. Then he was obliged to hunt up another milk man — perhaps no better than the first. If milk was plentiful, the cans failed to come back and the farmer must dispose of his product as best he could until the surplus subsided. At such times his milk was reported sour; an intolerable situation for producer, handler and consumer. I am amused when I hear dairymen sighing for those good old days, "When every man did that which was right in his own eyes; when there were no requirements as to cleanliness, cooling or character of the milk, and the tuberculin test was unknown;" — and cursing the handlers as overlords, monopolists, etc. Like the children of Israel — after they had come out of Egypt they forgot the taskmaster's bondage and bricks without straw and longed for the "leeks, the onions and the cucumbers," of which they were deprived.

Because of an increased demand for milk, the necessity of having it of better quality — more cleanly, as well as sanitary — and the need for an economical way of handling, companies were organized which erected stations in the country along the railroad where they received their milk direct from the farmers, cared for

it in the best manner, shipped it—largely in bottles—by the carload, in refrigerator cars, from whence it was taken by their teams direct to their city plant and distributed as described by Mr. Hallock, on page 118. Now, in the majority of cases, a farmer knows six months ahead what he will receive. The price paid at the station was usually a trifle more than that of the independent dealers; really it was less, because the dairyman was obliged to do certain things which added to the expense. On the other hand, his check was ready on the day set for payment. Only occasionally does a milk handler now default. All the milk the farmer made was taken no matter what the surplus. So the milk business has developed.



FIG. 1.—MILK DELIVERY WAGON DIRECT FROM THE FARM, PEDDLING MILK IN A SMALL TOWN.

Now, a milk train is started every morning at the St. Lawrence river and sent over the New York Central railroad to the city 400 miles distant. Other trains reach out to the western part of the state until they touch and invade the territory from which Buffalo receives its supply. The Catskill region sends out a steady flow, all of which was formerly made into butter. Franklin, Clinton, Essex and Washington counties on the north, daily

ship a large amount of cream and milk into the New England cities. The following figures show the number of forty-quart cans of milk and cream received over the different roads in Greater New York for the week ending November 22, 1913, and the totals for the previous week.

	FORTY QUART CANS	
	Milk	Cream
Erie.	39,309	1,504
Susquehanna.	9,777	533
West Shore	13,468	364
Lackawanna.	55,125	1,525
N. Y. Central (long haul)	85,387	1,752
N. Y. Central lines (short haul)	11,625	92
Ontario.	38,756	2,035
Lehigh Valley	32,625	1,392
Homer Ramsdell Line.	2,750	33
New Haven	8,925	75
Pennsylvania.	4,625	625
Other sources	1,695	17
Totals.	303,867	9,947
Totals last week.	306,373	10,363

Of course, much of this came from Pennsylvania, New Jersey, Connecticut and Massachusetts. Doubtless more goes from New York State to Philadelphia and the New England cities referred to above than is received from other states.

The quantity of cream is worthy of note, each can probably equivalent to at least six of milk. The increasing demand for cream, not only for direct consumption as such, but for the manufacture of ice cream and kindred products, is becoming a most important factor in the dairy business, and since a large part of the demand for this is in the warm weather it probably fully absorbs the surplus that formerly existed at that season.

PRESENT DAY FACTS

Thus we see how the situation has changed, surely on the whole for the betterment of all concerned; yet with some serious defects

both on the side of the producer and receiver,—most unfortunate. These have their root in the lack of appreciation of the other's viewpoint.

The handlers made arbitrary rules regarding stables, the handling of the milk and concerning certain kinds of feed which they were forced to do by city health boards. All these were based on correct principles. In the light of present knowledge some of the details have been shown to be unnecessary, largely made so by a better understanding on the part of the producer. To illustrate: Silage made from immature, thickly sown corn, put in a silo in which much of it spoiled, was not, nor is, a proper feed; nor was half-spoiled, fermented distillery or starch factory waste. Farmers were not slow to appreciate this when their attention was called to better feeds. They appreciated the fact, also, that cows digested their feed better, gave more milk

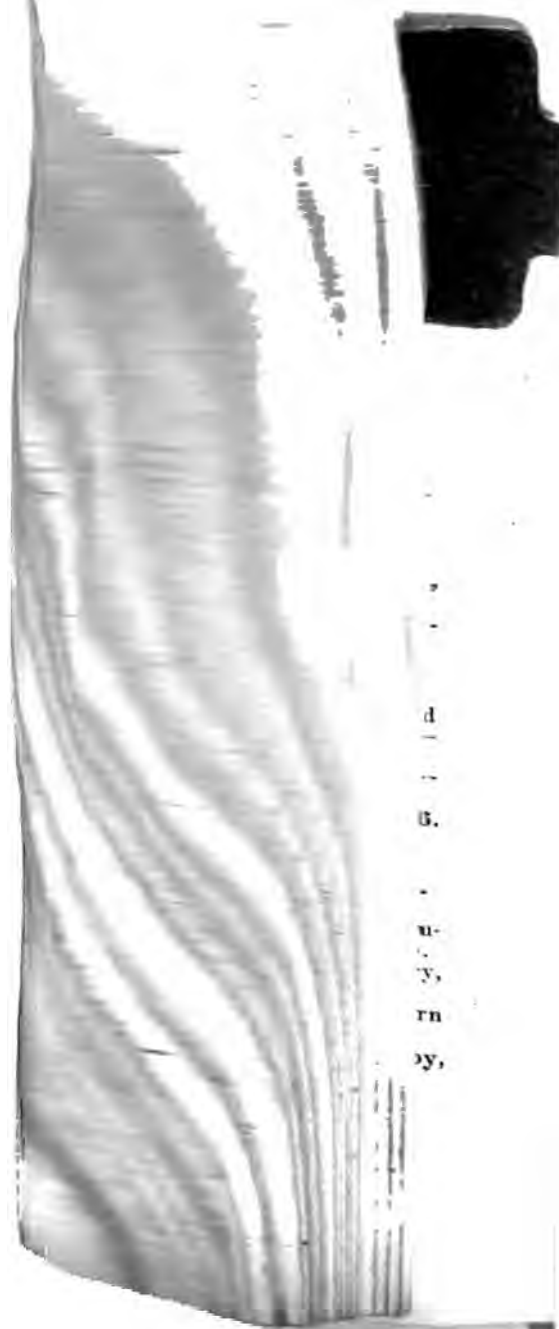
and lived longer in clean, well ventilated and lighted stables than in the dark unwholesome vaults in which many were formerly kept. Ultimately the farmer was able to produce more advantageously when he made these changes, but it meant a deal of expense. The price received for his milk was never much above cost of production, and he had little spare funds for improvements. He resented being told he *must* do thus and so, particularly when he was to receive no more for his milk after he had done what was required than before, or than his slack neighbors who did nothing. Had the plan, described by Dr. Harding on page 122, been



FIG. 2.— A TYPICAL MILK CUSTOMER IN THE TENEMENT DISTRICTS OF NEW YORK.



FIG. 3.—STORE IN THE TENEMENT DISTRICTS OF NEW YORK, WHERE LOOSE MILK IS SOLD FOR SIX CENTS PER QUART.



followed, progress would have been made much more rapidly for all concerned.

The farmer could not realize that the milk which formed only a small portion of the food of his healthy children who were well-housed, nourished and brought up in the open, on which they apparently thrived, was not good enough for any other child. He did not realize that it was often quite a different product after the injurious bacteria had developed, when it was fed to the city child, poorly nourished and housed. The articles by Dr. Breed and Professor Ross explain this and should be carefully read in this connection.

The city boards of health knew the intimate relation between the milk supply and infant mortality; they did not realize it was not as apparent to the farmer — hence the arbitrary rulings which the handlers were forced to make. Had a campaign of education first been made, such as was done at Geneva, much of the friction might have been avoided. Few dairymen are so selfish or hard-hearted as to in any way do that which would cause “one of the little ones to perish.”

INSPECTION AND INSPECTORS

There is something in the air which causes an American freeholder to resent the entrance on his premises of a stranger armed with a little brief authority, particularly when such a man is tactless, arrogant and ignorant, as were many of the inspectors. Unfortunately the boards of health were obliged to take them from a civil service list, and many were so ignorant of dairy matters that they had no idea whether a cow should be milked from the right or left side. Inspection by such men was a travesty. Today the inspectors, as a rule, are more intelligent, tactful and better informed. The dairymen as well have learned the necessities and are more broad minded. The man who sets his can of milk in the manure heap to keep it from freezing still exists; with him is the man who would not scruple to water his milk if he thought he would not be caught. For such there is no sympathy; they do not deserve the name of dairymen. Now most large handlers are paying a small premium on milk from

high scoring stables and clean healthy cows; scarcely as much increase, however, as the situation demands.

There is also the inspection by the employees of the State Department of Agriculture. They are generally men who have had farm experience as well as that which fits them to pass on the character of the milk. They go out with instructions from this department to help the farmer that he may not break the law, rather than to seek out cases of infringement.

Unfortunately there are a lot of men who are only legally honest. If they can dilute their milk or skim it without detection they do not hesitate to do so. This applies to creamery men as well, who have been fully as great offenders in this respect as the dairymen. The consumer has the same right to an honest quart of milk or pound of butter or cheese as he has to any other product.

At the beginning of the changed condition the desire was to get a quart of wholesome milk. Most of that received was unwholesome and little of it high in fat content. Therefore, much attention was paid to cleanliness and little to the real content of the milk, so long as it conformed to state standards, which are not high. As a result it was to the dairymen's interest to secure a cow which gave the largest quantity of legal milk. A few dealers were taking special pains to supply a milk rich in fat and other solids — for they increase in the same ratio — as well as to have it clean and sanitary. Hence, the better class of consumers began to realize that there was a difference not only between sour and sweet milk, but that that which had more cream was worth more and the call for it increased, they being willing to pay a slightly increased price for such. When the large handlers who had made their reputation on the wholesomeness of their product, had to meet this demand for a better quality they found their patrons, for the most part, with cows supplying milk barely up to the legal standard. At certain times of the year it was, and is, a difficult matter to make this milk pass muster. Therefore, came the demand for a better quality, met by protest from the dairymen. It costs more to make 4 or 5 per cent. milk than it does that containing 3 per cent. of fat, and the product of the cows

cannot be quickly changed as to quality by feeding. Dairymen insisted — if such milk was furnished — on an increased price, to which they are entitled. Two cents a point above 3.5 per cent.



FIG. 4.— EXTERIOR OF FIRST-CLASS MILK STORE IN NEW YORK. ONLY BEST QUALITY MILK IS HANDLED AND SOLD HERE.

milk for butter fat per 100 pounds of milk is not enough to pay for this increase. Experience has shown that it takes an increase of four cents a point to make it worth while to make richer milk. Milk is more or less valuable according to its fat and solid content. These facts are now recognized by all concerned.

COST OF PRODUCTION VS. PRICE

The foregoing is history and a statement of existing conditions. It is impossible to intelligently consider the question of price without a careful perusal of what has gone before. I hold no brief for the handlers. I am a producer of milk from the standpoint of dollars and cents, and I should be glad to have a higher price for my product without further increase in cost of production. Naturally my sympathy is with my fellow dairy-men. Any intelligent effort to better conditions has my hearty support so long as it is based on sound principles. I have no sympathy with the man who sits on the fence and howls about the low price of milk, the small profits of the business, and the iniquities of the big dealers, who makes no effort to eliminate his unprofitable cows, to feed more intelligently and to make a better article, which, because it is better will command a higher price and a more ready sale. Nor have I sympathy with those who, denouncing the so-called milk trust on the one hand, try to form one of the farmers on the other; nor with ranters who have no interest in the matter other than to draw pay for their services, who go about inflaming the minds of the ignorant.

It is impossible to get away from the law of supply and demand, particularly with a product as perishable as milk; nor from that of the surplus. Fundamentally these laws control the price of milk and always will. Mr. Hallock, on page 117, speaks of the extra quantity his company must have in order to supply their trade in time of scarcity. Except that these large concerns have special outlets for this surplus in which the by-products are utilized they would lose heavily; sometimes they do lose. Could the dairyman agree to furnish no more or no less than the handlers actually require from day to day it would be easy to secure a substantial increase in price. This would be impossible. For a neighborhood to have a plant where the surplus could be manufactured in times of plenty would at first sight seem a practical way of solving the difficulty, but as a capable man to handle the product would need to be available at all times, and as no regular trade could be secured for products supplied in times of plenty, it would at once seem that even this is impractical and more ex-

pensive than the present plan. Buyers pay no more than they must to secure the necessary supply; it would not be good business to do otherwise. Were the price of milk arbitrarily raised a cent per quart to the producer, the margin of profit would be so increased that every man who is now producing milk would so handle his cows that they would give more; he would buy more cows if they were obtainable; many men would go into dairying who are not now following it; the price of cows would materially advance, making the cost of production greater;—within a twelvemonth or less there would be more milk than the market could take and because of the surplus the price would again drop; the consumption would be materially reduced if the consumer had to pay more. These are facts no intelligent, thoughtful man can gainsay.

What must be done, for the margin of profit is small? The old story — better cows and less of them, producing all needed milk at a profit at existing prices, eliminating the cows producing milk at a loss, or without profit, which helps to overstock the market and reduce the price. This is an individual matter — it will never be otherwise. Note Mr. Nicoll's article on "Cow Testing Associations."

Every man with poor cows, unintelligently fed and handled, who is making a low-grade milk will always compete in a class where there is most competition, and for whose product there will always be the smallest demand and the lowest price. He who has well-bred and selected healthy cows, intelligently fed and economically handled, who is therefore putting out a first class product, will produce at least cost and sell in the highest market.

HANDLING AND DELIVERING NEW YORK CITY MILK

H. N. HALLOCK

Manager, Borden's Condensed Milk Company, New York City



The process of gathering, transporting and distributing the fresh milk supply of a big city is one of the complex tasks confronting those who provide our daily food.

In view of the fact that milk travels in a shorter and straighter line than most foods from the producer to the consumer, this may seem a little paradoxical. That the milk, which is taken from the farmer one day and delivered the next, may seem

to present a very simple problem, is natural enough to those unfamiliar with the various ramifications of the business, but as a matter of fact there is nothing simple about it. What seems to be a job early started and soon over is in reality a twenty-four-hour job without a let up from the beginning to the end of the year.

This fact alone is not peculiar to the milk trade. There are other pursuits which entail the same continuity of effort. There are features, however, which are found only in the milk business and give to this pursuit a quality of intensive merchandising that would be difficult to find in any other line.

In the first place it should be understood that fresh milk is the only thing that comes to our tables that must come quickly and be consumed at once. It cannot be stored when there is a flood of it and carried over until there is a shortage. Today's supply must be gathered today and used up tomorrow. The entire output of the country must be taken care of every day.

When one stops to realize that New York City alone uses 5,000,000 pounds of milk a day, it is easy to understand that the prompt conversion of this product into money is no ordinary task. A short stop anywhere along the line of transportation may mean sour milk, and sour milk means the difference between a small profit and a big loss.

Every day in the year the milk man must have enough milk for all of his customers, if he would hold their trade, and this notwithstanding the fact that the supply fluctuates between two extremes that vary as much as 45 per cent. of the total supply.

This means that the dealer must have enough at the shortest period to take care of his trade, and then find some way to take care of the surplus when the volume of milk increases, for in his contract with the farmer the dealer agrees to take all the milk that is offered at the creamery door.



FIG. 5.—AUTO TRUCK USED FOR CARRYING CANS OF MILK ON THEIR ARRIVAL IN WEEHAWKEN, N. J., TO THE DEALER'S HEADQUARTERS IN NEW YORK.

Whether the farmer brings one hundred or two hundred pounds, the dealer takes it at the price agreed on, and shoulders the responsibility of getting rid of the product.

Herein the producer enjoys a peculiar advantage. The volume of his supply does not affect its price, and the buyer is at his door every day ready to receive his output. The farmer knows, at the beginning of each contract period, just what he is to receive for his milk during the life of the contract. Should his output double during that time, it is up to the buyer to worry about disposing of it.

Instances are not uncommon where dealers have been overwhelmed through a brave effort to cope with an unexpected flood of milk, and being without means for handling a surplus, have gone down under the attendant losses.

To better understand the dealer problems of this great industry, it may be well to take as a typical example (at least typical of the better class) one of the largest concerns operating in New York City. This company deals almost exclusively in bottled milk. It does very little wholesale business, shipping the great bulk of its product to the city in glass bottles.



FIG. 6.— FIRST-CLASS MILK DELIVERY WAGONS USED BY LARGE FIRMS TO DELIVER MILK IN RESIDENTIAL SECTIONS OF NEW YORK. THE HAND-CARRIERS ARE ALSO SHOWN.

This service requires, first of all, numerous stations throughout the dairying districts where the farmer may deliver his milk with the least possible delay. These stations are always bottling plants and in many instances are equipped for pasteurizing. They are open every day in the year, employing a force of men sufficient to handle and ship the day's receipt in the morning hours. In most cases the daily shipment is in the car, covered with ice and on its way to the city within a few hours after the arrival of the first farmer at the receiving door. The car is

loaded and iced by the company, whose representatives receive it at the railway station to which that particular car happens to go. The milk is then loaded on huge four-horse trucks and hauled across the city to the delivery branch where it is taken in turn by the route salesmen who go direct to the consumer's door.

The whole process is accomplished with so little friction, and with such absolute certainty, that one is impressed first of all with its simplicity. But when the system of this company is analyzed it is seen that under the conditions which obtain in the milk business today, good milk in the city can only be had as a result of the most vigilant supervision all along the line, from the time the product leaves the farmer until it reaches the consumer. So much is this true that one finds that the price paid the farmer for the raw material is only one of a multiplicity of expense items.

Unlike any other food product the dealer's interest begins at the point where the supply originates. In the case of the company in mind, they employ a small army of inspectors and veterinarians whose duty it is to see that the farms, from which their supply is bought, are kept up to a proper sanitary standard. The veterinarians regularly inspect the cows on these farms to insure their being healthy. The cost of this work alone amounts to over a quarter of a million dollars annually, and it will be admitted by any who understand the value of cleanliness in milk that this expense is not an extravagance, nor the result of fadism.

At the bottling plants, each one of which represents a substantial investment, cleanliness is the keynote, and it is the kind of cleanliness that costs real money. The simple transferring of milk to a bottle and then to a railroad car probably consumes about 30 per cent. of the actual time spent in the plant by the force employed there. Once the milk cars have gone, the whole equipment is torn apart, high and low, flushed with floods of cold water, rinsed in hot water, and then scalded out with live steam; then put together again sweet and clean for the morrow's work. After this is the interminable washing of bottles again.

This company has in service 8,000,000 bottles. There is a loss each year of 6,000,000 of these containers representing a value of

over three hundred thousand dollars,—an impressive figure, but the housekeeper insists on having her milk in a glass bottle that enables her to see the cream line.

From the country to the city railway station, freight alone adds nearly a penny to the cost of a quart bottle of milk, and during its journey by rail it must be liberally iced to insure its keeping qualities. Ice is cheap, and this is fortunate for the amount used by the milkmen, when expressed in tons, present some staggering figures.



FIG. 7.— DELIVERY WAGON USED IN NEW YORK FOR CARRYING LOOSE MILK FROM WHOLESALE DEPOTS TO STORES AND BAKERIES WHERE IT IS RETAILED AT SIX CENTS PER QUART.

Whatever part of the city a car of milk may be destined for, the car itself can only reach the outskirts of New York, and long distance trucking is inevitable. For instance, that part of the supply which goes to remote parts of Brooklyn, such as Coney Island or Sheepshead Bay, are drawn from Hoboken or Jersey City, where the D., L. & W. and Erie railroads have their terminals. The same is true of Staten Island, of Flushing, and of parts of the Bronx. But far or near, there is no way of getting away from the intermediate haul.

The actual delivery to the consumer begins at the city delivery



branches. These establishments are, in every case, substantial buildings built to accommodate the thousand of horses and nearly sixteen hundred wagons used by this company. They are not storage places for milk; milk is never stored. They simply transfer the milk from the trucks to the delivery wagons and then house the teams when they are through with their routes.

To say what it costs to deliver a quart of milk is a question from which the average milkman shrinks, for the reason that it is an extremely difficult thing to compute. There are so many factors entering into the result that what may be true of one station goes all to pieces when applied to another. If one cares to figure on it, however, it is easy to see that with an average of less than three hundred quarts per day delivered by each wagon, there must be charged up a driver's pay, the upkeep of horses and wagons; cost of trucking from the milk platforms to the delivery branches; loss on empty bottles; cost of icing the milk, as it is necessary to keep milk below 50 degrees F.; freight from the country to the city; country inspection; handling and bottling the milk at the country bottling plants; together with the cost of supervision and interest on investment — one will have uncovered items which far exceed the original cost of the product.

While much has been said about the wide difference in the price paid to the farmer for milk, and the price paid by the consumer, it is a fact that that difference is far less than in most products which come to the table. It is also true that none of our food products require anything like the care that good milk must have, and it must have this care or it will not be good milk. The old method of milk distribution known as loose milk dipping is gradually disappearing. The consumer is showing an increasing appreciation of clean milk, and a growing aversion to milk that is exposed to the uncertain atmosphere of the average grocery store. This is proved by the increasing demand for bottled milk. Many of the dealers who formerly confined themselves to the distribution of forty quart cans to stores, are now sending out wagons offering bottled milk.

The city of New York through its health department has taken a definite stand on the matter, and it is only a question of a short time when what is now known as "dipped milk" will be unknown in that city.

HOW A SMALL CITY IMPROVED ITS MILK SUPPLY*

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PURE MILK A LEADING FACTOR IN PUBLIC HEALTH



The character of its milk supply plays an important part in the health of any community. When produced amid unclean surroundings or handled carelessly, milk used by babies and children is certain to produce much intestinal trouble and frequent deaths; and when drawn from unhealthy cows or cared for where the contagion of disease can reach it, this "perfect food" may carry poison and

destroy where it should nourish. Too often do we read of epidemics of typhoid fever and similar diseases being traced directly to some contaminated milk supply!

The importance of the subject, therefore, explains why this bulletin is published by the Station, although the work recorded was not done by it or under its control, the only connection of the institution with the matter being through one of its staff, who, as a citizen, served as a member of the Board of Health of the city of Geneva. However, the observations and data bring out the effect of two factors in the production of clean milk — publicity and payment based on quality;— and the Station is actively studying other factors; so city work and Station work admirably supplement each other.

WHAT WAS DONE

In 1907 the milk supply of Geneva was like that of other small cities in the State of New York,— probably not much better nor much worse than the average. An inspection of the dairies supplying milk to the city, made during the last quarter of that year, when reduced to a mathematical basis by the use of a dairy score

* Reprint from Geneva Bulletin No. 337.

card, showed an average rating of 411 points out of a possible 500. None of the dairies scored above 480 points — “excellent” — and only two above 450 points — “good;” 23 others were above 400 points — “medium;” while 15 were below 400, or “poor.” In other words, more than 90 per cent. of the milk then sold in the city of Geneva came from dairies in which the surroundings were dirty or filthy.

In three years and a half, without exciting ill-feeling or complaint, without any advance in the price of milk except that justified by the general rise in the cost of feed and labor, and at an expense to the city of only \$500 a year, a most striking change has been made in the sanitary quality of the milk. In the first quarter of 1911 the inspection showed no milk sold in Geneva that came from “poor” or “medium” dairies, a condition probably not true of any other small city in the United States. One-eighth of the dairies, furnishing nearly two-fifths of the milk, are in the “excellent” class and the remainder are “good.” That means that all of the milk is now produced by reasonably clean cows kept in reasonably clean stables and is drawn by cleanly milkers into sanitary pails and promptly cooled; while more than one-third of this milk comes from tuberculin-tested cows.

SIMPLE AGENCIES USED

The means by which this improvement has been secured are quite simple. They include quarterly examinations of the producing dairies by the sanitary inspector of the Board of Health, score cards of each dairy furnished to its owner or manager, with suggestions for improving conditions, and reports of the sanitary standing of the dairies published in the city papers. Incidentally, the payment, by dealers, of a higher price for better milk has aided materially in securing the hearty cooperation of producers.

The city ordinance covering the sale of milk provides that no person shall sell milk without a license from the Board of Health and that no one shall sell milk from a dairy which refuses to permit full and frequent inspection.

Acting under this ordinance the Board of Health appointed an inspector who visited the dairies and tried in all ways to secure

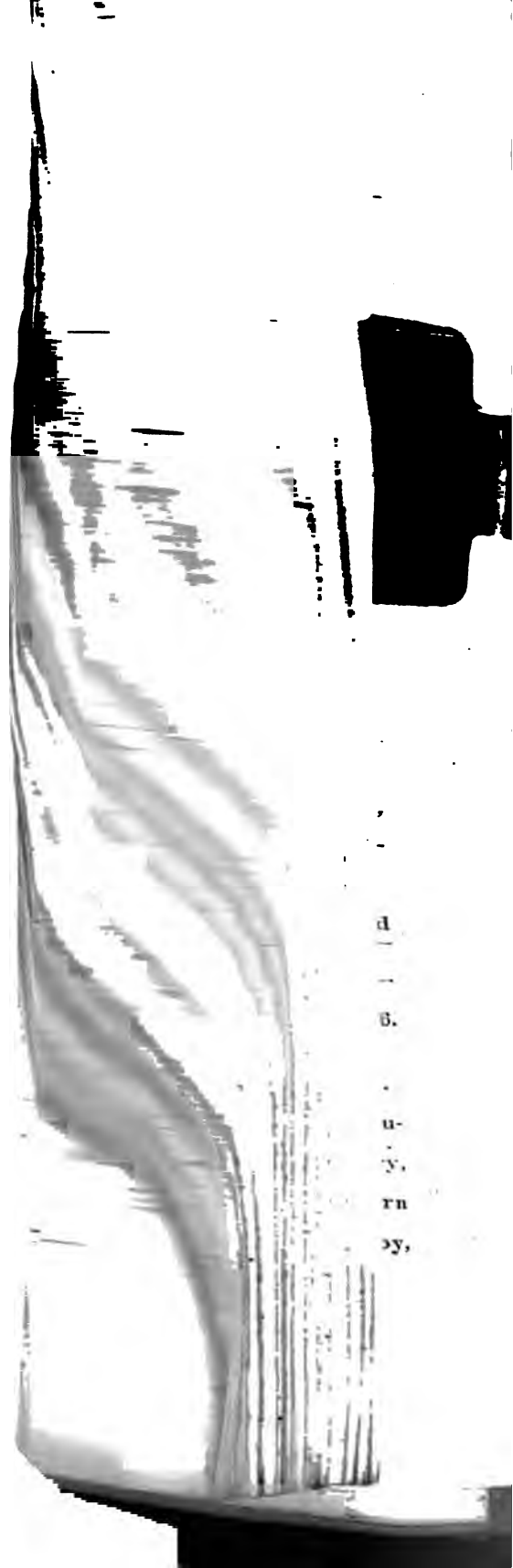
the cooperation of the dairymen before and while making the inspections. By avoiding officiousness and any issuing of orders, by courteous explanations and by convincing herd-owners that the inspections were to be of mutual benefit, by offering opportunity for correcting errors either in examining or scoring the dairies, and by full and free discussion, both public and private, of the aims and methods of the Board of Health in work along this line, the Board enlisted the dairymen as friends of the movement instead of opponents.

The Inspector was provided with blank forms, devised by Dr. Pearson for use at Cornell University, which made the inspection depend less on dairy knowledge and training than on good judgment. These blanks contain a series of questions relative to herd, stable and surroundings to which answers can generally be given by "Yes," "No," or by figures of dimensions, temperatures, etc.

The five general points covered are the health of the herd and its surroundings, the cleanliness of the cows and things about them, the construction and care of utensils, the health of the employees and manner of milking, and the handling of the milk.

The score cards, of the form devised by Commissioner Pearson, were made out from the inspector's answers to these questions. This was at first done by the Station member of the Board of Health; but later by the inspector. The choice of this official was restricted by civil service requirements and the only eligible candidate proved to be a man wholly untrained in dairy matters. His inexperience and lack of dairy knowledge were slight handicaps in introducing the new system, since his unfamiliarity with the dairy was soon evident to the herd-owners he visited and made them somewhat distrustful of inspection; but he soon became an efficient man, especially after a "short-course" in dairying at Ithaca. It would have been much better had a dairy school or agricultural college graduate, with practical dairy experience, been available for the place at first, mainly because of the confidence dairymen would have been able to feel in him. Such men should be sought for dairy inspectors wherever they are available.

As soon as the cards were made out, a copy of the one for each dairy was sent to the owner or manager, with check marks calling



attention to easily remedied defects in herd, stable or handling; and each dealer was officially informed of the standing of the dairies whose milk he handled.

PUBLICITY

Further publicity than this was omitted for a time; but both producers and dealers were warned that after a fair interval to allow of change and improvements, the results of the inspections would be given to the press so that consumers might judge intelligently of the character of the milk they bought.

A second inspection of the dairies was made early in 1908. As shown by Table I, the suggestions for improvement based on the first inspection, with the impending publicity, stimulated action on the part of the producers. Two "poor" dairies voluntarily abandoned the sale of milk and three others announced that they would do so when their contracts expired, while other dairymen so changed their conditions that the average score of the 38 dairies rose 21 points.

With the score cards of the third inspection, producers and dealers were given notice that the results of the next inspection would be made public in the press. Therefore, the essential facts of the fourth and all succeeding quarterly inspections were published. To protect the members of the Board of Health against legal actions should there be any financial loss from this publicity, the report of the inspector was made to the Dairy Products Committee of the Board, who in turn reported to the Board. The gradings of the different dairies thus became part of an official report which the newspapers were free to publish. The publication, beside general comments, included a list of the milk dealers of the city, with the dairies whose milk each handled graded separately as "excellent," "good" or "medium." The "poor" dairies had all left the field or become of better grade before any formal publication was made.

The results of the notice given that the Board would publish the data from the fourth inspection are reflected very plainly in the score cards, as will be noticed in Table I. The average gain was thirteen points and for the first time a dairy in the "excellent" class was reported.

TABLE I.—EFFECT OF INSPECTION, WITH PUBLICITY, ON SANITARY CONDITION OF DAIRIES

INSPECTIONS	Dairies	GRADING OF DAIRIES				Average score of dairies	Quarterly gain or loss in points
		Excellent	Good	Medium	Poor		
First.....	40	0	2	23	15	411	.....
Second.....	38	0	7	28	3	432	21
Third.....	32	0	5	26	1	436	4
Fourth.....	38	1	21	16	0	449	13
Fifth.....	34	1	20	13	0	454	5
Sixth.....	30	1	22	7	0	458	4
Seventh.....	36	3	22	11	0	458	0
Eighth.....	35	3	29	3	0	461	3
Ninth.....	35	3	29	3	0	466	5
Tenth.....	30	3	26	1	0	463	—3
Eleventh.....	35	4	30	1	0	463	0
Twelfth.....	36	4	31	1	0	465	2
Thirteenth.....	39	5	29	5	0	463	—2
Fourteenth.....	39	5	34	0	0	465	2
Total gain in points, average all dairies.....							54

From this time forward there was less rapid but still marked improvement in the score card points, with a gradual changing of the dairies to a higher grade, until the fourteenth inspection showed the disappearance of the last dairy in the "medium" class and an increase in three and one-half years, in the average sanitary condition of about forty dairies — 500 cows — of fifty-four points.

PAYMENT BASED ON QUALITY

The improvement in the dairies has, in the main, been gradual and quite uniform; but there were a few exceptions, as Table I shows. The decrease in the average score at the tenth inspection was due to the dropping out of several good dairies to secure the better prices offered at Rochester, and the failure to increase at the eleventh inspection and the decline at the thirteenth were due to the advent of new dairies with poor scores. The balancing of the score at the sixth and seventh inspections, however, brings out very strikingly the influence of the second factor in improving the milk supply,—payment based on quality. During the first year and a half of the inspections the milk sold in the city was distributed by one dairy company handling the product of nine

to twelve dairies, and a dozen or more retailers, some of whom sold their own milk. In 1909, nine of these retailers united to form another dairy company, and until late in 1910 these two companies and one producer supplied the city with milk.

After the first inspection dealers were advised to consider the question of quality in their contracts with producers, which were about to be renewed, since it was quite evident that the promised publication of the sanitary condition of the dairies would influence custom. Knowledge that the milk he sold was produced under good or excellent sanitary conditions would aid a dealer, while production under poor conditions would be a bad recommendation for any retailer's milk. It would, therefore, be unjust to treat all dairies alike in the matter of payment. With the new contracts, following the second inspection, most of the producers reached some understanding with the dealers in regard to improving the quality of the product, but no general agreement to make payment on the basis of quality was yet arranged.

After the sixth inspection, however, when most of the contracts for 1909 were made, the old company agreed to pay on the basis of quality as determined by the Board of Health inspections, milk from "medium" dairies to bring three cents a quart, from "good" dairies three and a half cents, and from "excellent" dairies four cents.

The new company made its contracts at a flat rate. Part of what happened in consequence is shown by the seventh inspection, as given in Table I and explained by Table II.

TABLE II.—EFFECT OF PAYMENT BASED ON QUALITY ON SANITARY CONDITION OF DAIRIES

INSPECTIONS	Method of payment	GRADING OF DAIRIES			Average score of dairies	Difference	Gain or loss from previous score
		Excellent	Good	Medium			
Seventh...	Quality....	3	6	0	474	21	1
	Quantity...	0	15	10	453	.....	-3
Eighth....	Quality....	3	6	0	473	15	-1
	Quantity...	0	22	3	458	.....	5
Ninth.....	Quality....	3	6	0	483	20	10
	Quantity...	0	22	3	463	.....	5

There was, apparently, no improvement in the dairies at this inspection, since the average score was the same as at the sixth inspection, 458 points. But the dairies selling milk on a sliding scale based on quality continued to improve and two of them became "excellent." The average score of the nine dairies under this company advanced one point from what it was at the sixth inspection and now stood twenty-one points above the average of the twenty-five dairies selling at a flat rate. These producers were without the financial reward to stimulate improvement and some allowed their dairies to retrograde. This was true of practically all of the five producers, now selling to the new company, who had before retailed their own milk. These dairymen felt relieved of the personal responsibility that publication of their standing imposed and gave less care to proper sanitary conditions. The lowering of the standard of these four or five previously independent producing retailers brought down the average score of the twenty-five dairies under the new company three points. One of these dairies fell from 476 points in March to 454 in June.

EFFECT OF QUALITY ON TRADE

This great difference in quality between the dairies selling milk under unlike contracts continued for nearly a year, but was so strikingly reflected in the demand for milk from the two companies that the new company, to protect itself, was obliged to reason very vigorously with its producers and to compel better conditions in the dairies. The following year also made its contracts on a quality basis.

The effect of published quality on trade is plainly shown by the distribution, during the summer of 1909, of the decrease in sales which accompanies absence of residents on summer vacation, greatly increased at this time by a necessary advance in the retail price of milk from six to seven cents a quart. For this advance, consumers held the old company largely responsible, so its sales were nearly 3,000 quarts less for July than for June, while those of the other company were 2,250 quarts less. In August, however, the resentment against the old company had somewhat worn off and the better sanitary quality of its milk was

exerting its influence, so this company sold only 2,000 quarts less than in June while the new company sold 4,800 quarts less. In September the losses were 2,800 and 7,200 quarts respectively; while in October the sales of the old company returned to about the June level and those of the new company continued to decrease. In November the new company sold 7,500 quarts less than in June.

Though consumers are usually quite unwilling to consider any advance in the price of milk to compensate for improved quality, they will give their patronage to the dealer who gives better quality for the same price.

But to secure milk from tuberculin-tested cows, however, only a few Genevans would pay an added price when the opportunity was offered them by a thoroughly reliable dairyman.

CONCLUSIONS

In the last analysis the limiting factor in the improvement of a municipal milk supply is the disinclination of the consumer to pay a price which will permit the production of first-class milk. The extent to which any supply can be improved depends ultimately upon the price at which the milk can be sold. Under the present system of indemnity for reacting animals by the state milk from tuberculin-tested cows can be furnished at an increased cost of one-half cent per quart. Without such assistance it probably would not be furnished without an advance of at least one cent per quart. While a small proportion of the public are willing to pay the additional price the majority are not.

Payment for milk on a sliding scale based on the official dairy score and the presentation to all parties of the facts regarding the sanitary conditions under which the milk was produced and handled quickly improved the quality of the municipal milk supply. The dairymen were quick to produce the highest grade of milk for which they could obtain an adequate return.

During the past three years the improvement which has taken place in the milk supply of Geneva has been noteworthy from every point of view. While local conditions would necessitate slight modifications it is believed that the principles here outlined,

of publicity and payment based on quality, might be applied with equal success in any small city, the health officials of which, by their sympathetic handling of the milk problem, could command the respect and cooperation of the milkmen and of the public.

The expense of the city due to dairy inspection has been approximately \$500 per year. This amount is within the financial reach of practically all cities and can not be considered a burden in view of the results obtained.

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BACTERIA IN MILK

ROBERT S. BREED, PH. D.

New York Agricultural Experiment Station, Geneva, N. Y.



So much has been written in recent years about the bacteria which occur in milk that everyone is coming to understand something of their nature. Owing to the fact that so much of our knowledge concerning bacteria has been acquired so recently, and new knowledge concerning them is being gained so rapidly, it is important to summarize our knowledge from time to time.

In 1683, an early Dutch microscopist placed some tartar which he had scraped from his teeth under a microscope. He was very much surprised to find certain very tiny, rod-like and globular bodies, some of which possessed the power of locomotion. He had no idea of their real nature and it was several centuries before it was fully realized that these tiny organisms which he had found, and which were found by himself and others in many other substances were really more like plants in their growth and development than they were like animals. Thus it was not until 1838 that Eherenberg, a German scientist, recognized them as a kind of fungus related in many ways to moulds and mildews, and in other ways to certain other microscopic plants which live in fresh water ponds and ditches.

The bacteria are so tiny in size that there is no way of studying them except with a microscope. None are large enough to be seen with the naked eye. Even the largest of them must be magnified nearly 100 times before they are visible, while it is quite probable that the smallest of them are so tiny as to be invisible even under our most powerful microscopes. During the past six months the discovery of the germ which is believed to cause infantile

paralysis has revealed a germ so small that it can scarcely be seen and it is possible that some individual germs are too small to be seen.

Notwithstanding the fact that bacteria are so small and individually insignificant, they nevertheless produce many results by growth in mass which are important and easily recognized by



FIG. 8.—PHOTOGRAPH OF CULTURE DISH CONTAINING A NUTRIENT JELLY ON WHICH BACTERIA ARE GROWING. TWO LARGE MASSES OF BACTERIA AND SEVERAL SMALL ONES NO LARGER THAN PIN HEADS ARE SHOWN. THIS CULTURE WAS MADE FROM MILK SIX HOURS OLD, THAT HAD BEEN KEPT IN A REFRIGERATOR IN CLEAN DISHES.

the unaided eye. The results of the growth of the so-called pathogenic bacteria produce many diseases of man and animals, and also of plants. These disease-causing bacteria, which use the living tissues of animals and plants as food, are so important to us and have been talked about so much that many people think all bacteria to be of this kind.

This, however, is not true, for nearly all decay of organic substance is caused by bacterial growth. Some of the bacteria which cause decay are as important to man as the disease-causing bacteria. Still other bacteria, such as those living in the nodules of alfalfa, clover and like crops, and many others living in soil, have even simpler food requirements than the disease-causing or decay-



FIG. 9.—PHOTOGRAPH OF CULTURE DISH CONTAINING THE SAME AMOUNT OF JELLY AS THAT OF FIG. 8 AND TAKEN FROM THE SAME BOTTLE SIX HOURS LATER AFTER IT HAD STOOD IN A WARM PLACE FOR SIX HOURS. NUMEROUS MASSES OF BACTERIA ARE SEEN, SOME LARGE, SOME SMALL.

causing organisms. Bacteria of the kind which require simple food substances are among the most important of the bacteria from the standpoint of agriculture.

Milk is a liquid which contains a little over 12 per cent. of organic matter, partly in solution and partly in the form of an emulsion of butter-fat. The remainder is water with traces of mineral salts. Many bacteria grow rapidly on the organic sub-

stances present in milk. Of these, milk sugar is the favorite food. The casein and albumen are also used as food by many bacteria, while practically none of the bacteria can use the butter-fat as food. The result of the use of these compounds as food by the bacteria is to change their nature. The milk sugar is usually turned into lactic acid, the albumen and casein are broken up into simpler chemical compounds, which are again used as food by other bacteria, yeasts and moulds.

The action of the bacteria in changing the milk sugar into lactic acid is usually spoken of as a fermentation because of its similarity to the change which takes place when the alcohol present in hard cider is changed by bacteria into the acetic acid of vinegar. The changes produced in the albumen and casein are similar to the changes which occur when meat decomposes, and are generally spoken of as a putrefaction.

Under all normal conditions the most noticeable change which takes place in milk on standing is that of a lactic acid fermentation. The production of the lactic acid causes the milk to curdle and the curd to separate from the whey. The milk is then spoken of as sour because of the sour taste given by the lactic acid.

It is fortunate that this is the common change produced in milk by bacteria, for the small percentage of lactic acid in sour milk is generally believed to be beneficial to the health of human beings. Moreover, such milk contains large numbers of the bacteria which have caused the fermentation and which are spoken of as lactic acid bacteria. Such bacteria when taken into the human intestines tend to grow there and thereby destroy the common bacteria which grow in them. The bacteria which are thus destroyed are largely the so-called colon bacilli which are believed by Metschnikoff to be largely responsible for the changes which occur in old age. For this reason Metschnikoff urges the use of sour and fermented milk, such as buttermilk, yoghurt, etc., as a means of keeping well and preserving youthfulness. His theories have been well borne out in practice, and the use of such drinks is generally advocated by physicians at the present time. This point should be emphasized because of the fact that there is a general belief that milk which contains a million or more of bacteria per cubic centimeter is not fit for food, while as a matter of

fact milk containing millions of bacteria may be as healthful a drink as fresh milk provided the bacteria present are of the right kind.

The putrefactions which occur in milk are not likely to be noticeable under ordinary circumstances except in milk which has been pasteurized at high temperatures. When putrefaction predominates over fermentation it is very noticeable because of the disagreeable odor. The milk is frequently said to be rotten when this happens. When putrefaction occurs many housewives think that their milkman has put something in his milk or that it is filthy and therefore refuse to buy his milk. However, the usual explanation of such conditions is that the milk has been heated until all lactic acid germs have been killed. Thus the putrefactive germs have a chance to develop.

Certified or other milk is sometimes handled in such a cleanly way that no lactic acid germs get into the milk, and it does not sour in the normal way. Such milk frequently does not show any visible changes for two or three weeks, although it may contain millions of bacteria per cubic centimeter, but of a kind which neither sour nor putrefy the milk. Inasmuch as some of the bacteria present under such circumstances have been found to have an injurious effect when taken into the human stomach, it is not advisable to use old milk of this type even though it is neither sour nor putrefied.

The bacteria present in milk are important to man not only because of the actions of these forms which cause changes in the nature of the milk, but also because some of the organisms which occur may be those which cause disease. These disease-causing bacteria may make their way into the milk either from diseased cows or from diseased persons who handle the milk. They only occur exceptionally and probably never as the predominating bacteria.

The disease germs which come from the cow include those of bovine tuberculosis and probably septic sore throat and contagious abortion. Those that come from human sources include human tuberculosis, typhoid, diphtheria, scarlet fever and possibly septic sore throat.

There has been much discussion over all of these, but perhaps



FIG. 10.—COW STABLE ON FOLLYLAND FARM, GREENWICH, N. Y., OWNED BY I. C. BLANDY.



more over the question of tuberculosis germs in milk than over any of the others. It is now pretty generally admitted that there are two types of these germs which may occur in milk, one derived originally from bovine and the other from human sources. Of these the bovine type is much more common in milk. These get into the milk either from cows discharging them from their udder or from animals discharging them from their intestines. In the latter case they reach the milk by dropping into it with pieces of dried manure. Those from human sources come from persons suffering from tuberculosis who milk the cows or otherwise handle the milk or utensils. Inasmuch as bovine tuberculosis is a disease which can be entirely eradicated by the elimination of tubercular animals, the farmers should cooperate in every possible way to this end. By so doing the farmer gets rid of the disease, which may spread rapidly through his herd and thereby render it an unprofitable herd, and at the same time he protects the users of the milk from this source of infection. Danger from human sources can be avoided by not allowing persons suffering from the disease to handle the milk in any way.

During the past few years there has been considerable discussion over epidemics of a kind of sore throat which is similar in some respects to tonsillitis, but yet is generally believed to be a different disease. It is commonly spoken of as septic sore throat. Some of these epidemics have been traced back to the use of infected milk, but our information in regard to the nature of the infection and the original source of the infection is still incomplete.

One of the commonest of the diseases of human origin which is distributed in milk is typhoid fever. This disease is more commonly spread by sewage-polluted water supplies than by milk supplies, but many epidemics of this disease have been traced to infected milk. There are numerous ways in which these germs can get into milk. Pails and other utensils may be washed with sewage-polluted water which thus indirectly infects the milk, or there are many ways in which the germs discharged from the body of a person suffering from typhoid fever may get into the milk. But a still more dangerous source of these germs is the person who is infected with them, and yet is not sick, the so-

called "typhoid carrier." Any person who has had typhoid fever may harbor the germs in their intestines for years thereafter, and the bacteria from their discharges may get into milk, especially where such persons handle the milk in any way. Some practices found altogether too frequently on the farm or at creameries, whereby such germs get into milk, are that of dipping the finger into a can of milk in order to smell or taste it, of milking with wet hands, and of using a measuring stick to measure part cans of milk, and then wiping off the stick with the hand or a dirty cloth. Scarlet fever and diphtheria germs make their way into milk in much the same way, but here the problem of the "carrier" is apparently not so serious a one.

It must not be thought that these disease germs are commonly present in milk. This rarely occurs, but because of the serious results which come when they are present we must do everything in our power to keep them out of milk. It is much easier to keep out disease germs from human sources than from bovine sources, because it is possible to handle milk in sterile utensils, and to do away with any possibility of any person touching the milk with his hands. This is actually being done on some certified milk farms where milking machines are used and all utensils are sterilized, and protected from contamination from human sources. Unfortunately we are not yet in a position to require that all milk be handled in this way. Even these precautions do not prevent the entrance of bovine tuberculosis germs or other pathogenic germs discharged from the udder of the cow. The entrance of these germs cannot be entirely prevented except by making absolutely sure that the cow is not suffering from tuberculosis or other disease in which germs are discharged from the udders. The tuberculin test determines the question of tuberculosis as well as can be hoped for, but we are not in a position to prevent the entrance of other pathogenic germs in a like satisfactory way.

Because of this fact, and also because of the fact that the absolute prevention of contamination of the milk from human sources is so expensive as to make the cost of production almost prohibitive, many men are urging that all milk be pasteurized, thereby killing all disease germs of whatever nature or source.

Unfortunately, pasteurization is not an entirely satisfactory solution of the problem; for this process is one that is exceedingly difficult to control with the necessary exactitude, and improperly pasteurized milk may be more dangerous than unpasteurized milk. Moreover when high temperatures are used the milk does not sour properly, and may putrefy, thereby causing housewives to look on it with suspicion. For these reasons pasteurization has not yet been universally adopted in this country. Continental Europe has practically solved the question of disease germs in milk by drinking nothing but boiled milk.

The most important sources of bacteria in milk as it is handled on the farm may be summarized as follows:

1. Some bacteria are in the milk as drawn. These have been derived from the udder of the cow.
2. Some get into the milk with the dirt and dust which fall into the milk as it is being milked or as it stands in open and exposed utensils.
3. Some bacteria get into the milk from the hands of the milker and from the dirty surfaces of the various milking utensils.

Extensive studies have been made and are still being made at the New York State Experiment Station at Geneva, to determine as exactly as possible how many bacteria get into the milk in each of these different ways.

Thus 1230 examinations were made¹ of milk drawn with sterile precautions from the udders of cows of the Station herd and of a neighboring herd, and it was found that the average number of germs derived from the udders of these cows was 500 per cubic centimeter, only 8 per cent. of the samples showing counts higher than 1,000 per cubic centimeter. Thus no matter how carefully milk is protected during the milking process, fresh milk may be expected to contain an average of about 500 bacteria per cubic centimeter. The results of the remaining investigations are not yet complete, so that they cannot be summarized in the same way. It is certain, however, that a large number of bacteria enter the milk from other sources rather than from the udder, under the conditions present on the average dairy farm.

¹ Technical Bulletin No. 27, New York State Experiment Station.

The studies which have been completed showed the following results under the comparatively clean conditions present in the Station barn.

a. The use of small mouthed milk pails in place of open topped pails reduced the initial germ content of the milk more than one-half.²

b. Studies on the milking machine showed that by proper methods of handling, the number of bacteria could be reduced from 180,000 bacteria per cubic centimeter to less than 10,000 bacteria per cubic centimeter.³

c. The protection of milk pails from accidental contamination

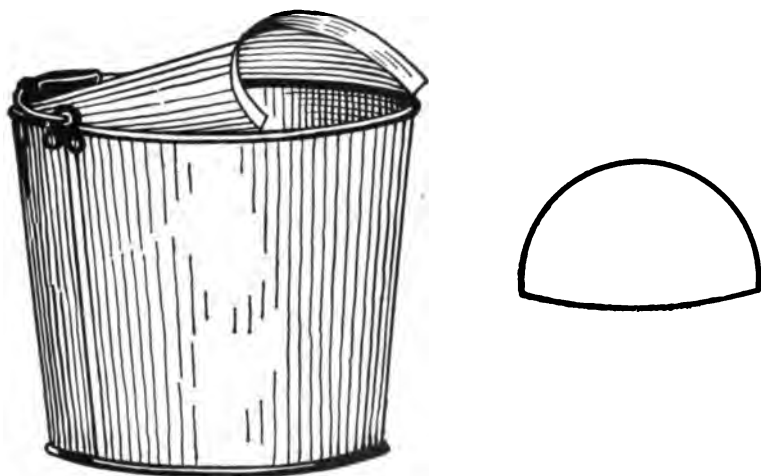


FIG. 11.—MODIFIED LOY PAIL. A VERY EFFICIENT SMALL-MOUTHED PAIL WHICH CAN BE MADE BY ANY TINNER.

after they had been thoroughly steamed had a measurable effect in reducing the number of germs which entered the milk.

d. The cleanliness of the interior of the stable, within a fairly wide range, had no measurable effect on the germ content of the milk.

e. Clipping the udder, flank and adjoining portions of the cow was found to have practically no effect on the germ content of the milk when the cow was cleaned either by hand or with a vacuum cleaning machine.

² Bulletin 326, New York State Experiment Station.

³ Bulletin 317, New York State Experiment Station.

f. When all the utensils were carefully steamed, cooling and straining the milk under the conditions present in the Experiment Station dairy resulted in only a small increase in germ content.

g. Cleaning cows by means of a vacuum cow cleaner was not found to be any more efficacious in keeping down the germ content of the milk than cleaning the cows by hand, even where the time used in hand cleaning was only one-half that used in vacuum cleaning.*

All of these results are exceedingly hopeful for the average dairy farmer and likewise for the consumer of milk, for they tend to show that some of the things which have been thought to be essential to the production of a high-grade sanitary milk are unnecessary. Inasmuch as many of these unessential requirements mean expensive equipment or additional labor to carry into effect, they are impracticable from the standpoint of the average farmer.

If the milk is drawn into sterile receptacles and in such a way that no dirt falls into it, there is no reason why the initial germ content should be over 500 bacteria per cubic centimeter. Moreover we have much evidence to show that many of these organisms from the udder die when the milk is cooled, thus reducing the initial germ content still further. Whether the number of bacteria in the milk remains at this low figure is entirely dependent upon two things; first, whether it is properly cooled and kept at a low temperature, and second, whether it is handled continuously in such a cleanly way that no dirt falls into it, and that it does not come in contact with unclean persons or utensils.

Such ideal handling of the milk is not at present practicable on the average farm, chiefly because of the fact that the utensils can not be properly sterilized. Ordinary washing does not accomplish this. However, careful washing or ordinary methods of cleanliness do keep the number of germs down to a minimum, and this does not require expensive equipment or much additional labor.

It is entirely possible for any person to keep out of the milk practically all of the bacteria which fall into it with dirt and dust.

* Bulletin 365, New York State Experiment Station.



FIG. 12.—SANITARY STABLE AT STATE AGRICULTURAL EXPERIMENT STATION, GENEVA.

To do this, the cow must be kept reasonably clean, small mouthed milk pails must be used, and the milk must not be allowed to stand in open pails or be aerated in a room where the air is dusty.

It cannot be too strongly emphasized that high-grade sanitary milk can be produced on farms where the barns and equipment are of an ordinary character and not especially expensive. The two essential things are that the milk should be protected in such a way that no dirt falls into it and it should be cooled and handled in utensils which are scrupulously clean. Lest anyone should think these conditions impossible of attainment under ordinary conditions, it should be stated that tests made at the State Experiment Station indicate that they are now being attained on many New York State farms. The chief reason why we still have dirty milk is because it is ordinarily more profitable to produce dirty milk than clean milk. These conditions must be corrected.

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THE STORY OF A CERTIFIED MILK FARM

By W. D. DANA, Avon, N. Y.

Vice-President, New York State Dairymen's Association

Woodlawn, a farm of 160 acres, situated in the town of Avon, nineteen miles from Rochester, was purchased by my father in 1854. The soil, Dunkirk fine sandy loam, has been fairly well underdrained, is gently rolling and is all tillable. The farm is watered by wells and springs. Ten years ago 136 acres, situated about five miles distant on the Onondaga limestone, were purchased. This was cheap land and neglected, but used as a pasture for young stock and dry cows, pays good interest on the investment. Three years ago twenty-two acres adjoining Woodlawn were purchased. This land, for the previous ten years, had not paid interest and taxes, but a carload of tile, good tillage and stable manure are making it profitable.

The management of Woodlawn, always a bread-and-butter proposition, was placed in my hands about twenty-five years ago. It was then a grain farm — wheat, barley, beans and apples being the money crops. The stock consisted of four or five cows, six or seven horses and a flock of about fifty sheep. For a winter or two, a few steers were fed; then for several winters from one to two cars of lambs were fattened. Meanwhile the number of cows was increased, butter being sold to the leading hotels of Rochester.

The old stable was at one end of the barn, had a plank floor, stanchions for nine cows, and was lighted by one small window. The old grain barn was 120 feet long and consisted of three 30 by 40 foot barns, joined together end to end. They were in good condition, having been kept well covered. Realizing that the old stable was inadequate and ill adapted to our needs, the east section was raised and a wall placed under it. This basement was lighted by three windows on the south and two on the north side, the window openings being about two and one-half feet square. The floor of this stable was pounded clay, except a strip two feet wide under the hind feet of the cows. The gutter and the walk back of the gutter, were of cement. Stanchions



FIG. 13.—BARN, DAIRY, MILK HOUSE AND SILO ON WOODLAWN CERTIFIED MILK FARM, AVON, LIVINGSTON CO., OWNED BY
WILLIAM D. DANA.

were rigid wood with wooden mangers. At first only one side of this stable was fitted for cows, the other side for young stock. A creamery having been built near by, butter-making was given up, and the milk taken to the creamery. The number of cows increased until it was found necessary to raise the other two sections of the barn. A part of this basement was fitted up for sheep and a root cellar. Stanchions for fifteen additional cows were installed. The same ratio of light was continued, but the ventilation was improved by an airshaft carried out through the roof.

Soon after this change the contract to furnish milk to the State Industrial School in Rochester was secured. In going over the plant, Doctor Goler, the present health officer of Rochester, who was at that time a member of the school board, highly commended it. This contract was held for about nine years. During that time the herd was kept good, largely by purchasing cows and selling the failures and milked out cows for beef. Generally the cow turned off and the calf with the new cow paid for her. However, a pure-bred bull was kept and a few heifer calves raised. As these heifers came in milk they proved to be better milkers with their first calves than were the average cows bought in. Gradually more and more of the cows were raised. The school board asked to have the herd tested with tuberculin, which was done; there was a very large reaction. After filling in again with tested cows, I was unable to secure any advance in the price of milk. A great mistake was made by not keeping it up. After a time the school secured its supply elsewhere at a lower price. Then for a time cream was made and sold to dealers in Rochester, the skim milk being fed to calves and pigs. This was good business until the milk advanced in price faster than cream; then milk was sold to dealers in Rochester.

We have always taken pride in our business, and wished to furnish good milk produced under as good conditions as we could afford. The health bureau was insisting on better conditions. The stable that had been highly commended was now criticized for light, ventilation and for part dirt floors. The general market, however, would not pay any premium for milk produced under proper sanitary conditions. We wished to breed our own cows,

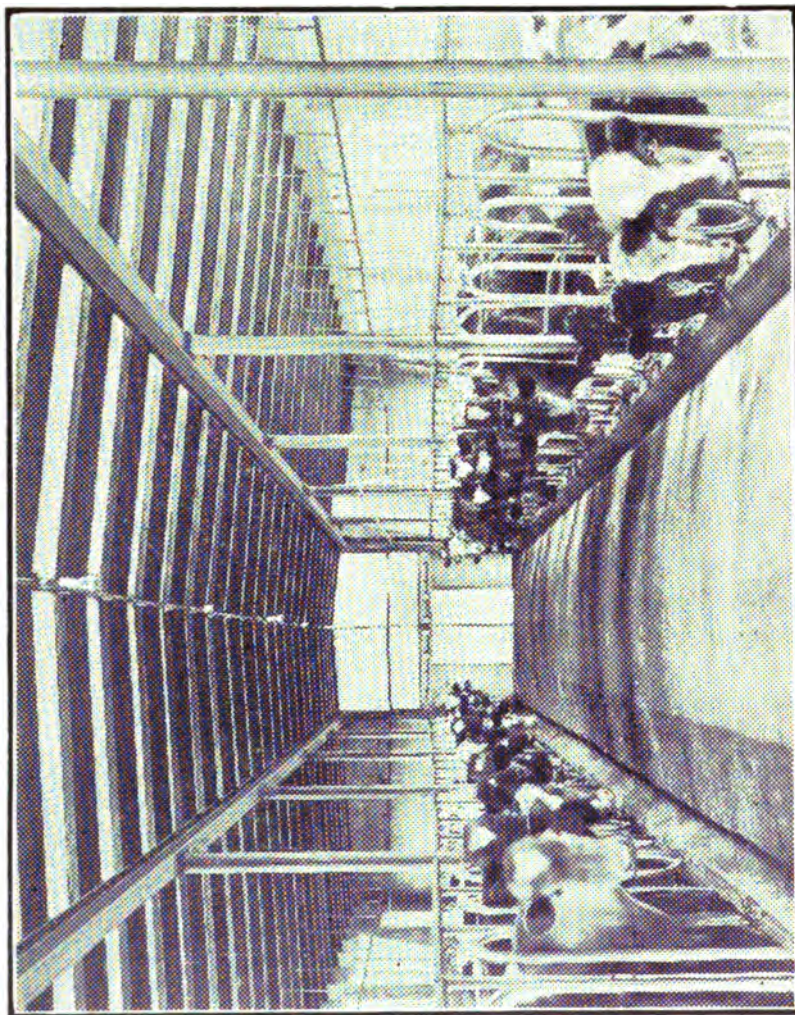


FIG. 14.—INTERIOR OF DAIRY BARN, WOODLAWN CERTIFIED MILK FARM.

but became convinced that it would not be profitable to do so unless the herd was free from tuberculosis. The only way to dispose of milk produced in a sanitary way by healthy cows, at anything like an adequate price, was to have it certified by a milk commission as being so produced. City milk inspection is so conducted that there is enough poor milk admitted to the city to fix the price of all market milk at so low a point that only the slack man can make it pay. It was therefore decided to clean up the herd and remodel the barns so as to adapt them for the production of certified milk. The problem was to secure the desired results at an expense that the return would justify. They could not be rebuilt, but must be remodeled.



FIG. 15.—CAP USED ON CERTIFIED MILK BOTTLES.

Certified milk, to state it briefly, is milk certified by a medical milk commission, that has been produced by healthy cows, kept clean in a clean and healthful place; fed only on proper food, having access only to pastures free from swampy and low places; milked and handled by clean, healthy persons, in a clean manner; all utensils and bottles coming in contact with it being of proper construction, clean and sterilized; the water used free from contamination; the milk house a suitable place in which to handle milk, properly located and equipped; the surrounding premises attractive and sanitary, and the milk must contain not more than ten thousand bacteria per cubic centimeter.

The first requirements being healthy cows, the herd was tested with tuberculin and all reacting animals disposed of. Tested animals were then introduced to take their place. The keeping of the herd free from tuberculosis is one of the greatest problems in producing certified milk. This was in 1908; since then no new animals have been introduced, my experience and observation being that the introduction of new animals, even when they pass the test, is attended with considerable risk of reintroducing tuberculosis unless they come from clean herds. The herd was tested twice a year until there was no reaction; since then only once a year.



FIG. 16.—INTERIOR OF GRAIN BARN, SHOWING CONSTRUCTION, GRANARIES AND HAY CHUTE TO COW BARN, WOOD-
LAWN CERTIFIED MILK FARM.

To comply with the requirements of a clean and healthful place for the cows, the entire interior woodwork of the old stable was torn out. All the floor was covered with concrete. Iron posts were used to support the upper floor, iron stanchions and partitions substituted for wood, the root cellar removed, the area of glass to admit light more than doubled, the King system of ventilation introduced, and a tight floor laid above. The accompanying cut of the stable of a neighbor, Mr. Schanck, who had previously remodeled his plant for the production of certified milk, will give a fairly accurate idea of the interior of the remodeled



FIG. 17.—GROUP OF CERTIFIED MILKERS, LINCOLN AGRICULTURAL SCHOOL, LINCOLNDALE, WESTCHESTER CO., N. Y.

stable, as they were practically the same. The milk house was doubled in size to furnish a bottling, sterilizing and ice room, and the ice house was greatly enlarged. A boiler, turbine separator, machines for washing, filling and capping the bottles, all of the latest design, were installed.

The cows instead of being kept fairly clean, were thoroughly groomed once a day. Before milking, they were brushed off, flanks and udders washed, then wiped with a clean towel. The milkers thoroughly washed their hands and put on clean suits before milking. Small-topped pails were used to milk in; the first



FIG. 18.—MILK HOUSE, WOODLAWN CERTIFIED MILK FARM.

few streams milked into a separate pail and discarded, the milk carried to an anteroom, emptied into sterilized cans, and sent to the milk house by a trolley, where it was immediately bottled and the bottles placed in cracked ice. A portion, however, was separated and the cream bottled and iced.

A small, swampy place, perhaps a tenth of an acre, was fenced off in the pasture. The water supply was adequate and its purity unquestioned. The feeding of the cows was practically unchanged, except that they were never fed until after milking on account of dust. Bacteria float into milk on dust rafts, hence prevent the dust from circulating. For this reason, pine shavings are used for bedding.

We began selling certified milk in 1910, and by constantly watching details, the milk and cream produced gave satisfaction, but the sale of it was slow. This is the experience of nearly all certified milk plants,—it takes time to build up a trade, but when secured it is permanent.

In August, 1911, during my absence from home, my barns were burned; fortunately the cattle were saved. It was then necessary to plan for a future. Cows or no cows was the first question. Woodlawn, being admirably located and adapted for the production of high-grade milk, the herd free from tuberculosis and good producers, the beginning of a certified trade established, I decided for cows. Then came the problem of barn plans. Basement for cows? No, too dark, too hard to ventilate, too dusty. Grain barn? Yes, large enough for grain and hay. Basement? Yes, nine feet in the clear, wall three feet high; to be used for young stock, horses, and carriage room. Cow barn,—a wing, one story high, between barn and silo, to be as near fireproof as possible. Silo? Yes, monolithic concrete.

The new plant was ready for occupancy the latter part of November. The grain barn is 40 by 110 feet, plank frame construction with slate roof. Cow barn, 34 by 92 feet, built of hollow tile, plastered inside and out with cement; roof supported by iron girders and posts, covered with 2-inch plank and asbestos roofing. Silo, 18 by 50 feet, monolithic concrete. Dairy house, 20 by 22 feet, tile walls and partitions, slate roof. The cut gives a very good idea of the general relative location of the completed build-





FIG. 19.—WASHING COWS IN THE SCHAUCK CERTIFIED MILK DAIRY BAEN, AVON, LIVINGSTON CO.

ings. The cow barn is in the highest ground, giving good drainage. This is very important, since the yards must be free from mud or standing water. The manure must not accumulate around the barn or be deposited where the cows can get into it. The cut of the cows in the stable is a snapshot, showing the arrangement and abundance of light. The cows in the barn are doing better than they did in the old one.

With this plant, certified milk can be produced easier and cheaper than in the old barn. There are fewer reactions to tuberculin, and the general health of the herd is better.

Producing certified milk is more satisfactory than producing market milk, if one likes to do things well. More and better help is required, three men now being required to take care of the herd and the milk house, where one did the work in producing market milk. The superintendence of the plant is much more exacting, in order that all the details may be properly watched. Also, a larger sum must be charged for it. The greatest drawback to the development of a certified milk trade is the limited market. In the city of Rochester, where a large proportion of the milk supply is pronounced bad by the city health officer, and the consumer has no means of knowing whether his individual supply is bad or good, only a small proportion of the consumers use certified milk, although it is offered them at a comparatively low price and is the only milk that he can place on his table with any assurance that it is clean and free from disease germs, or that will not be absolutely dangerous to feed his children. The man with limited capital ought to carefully count the cost and be sure of his market before entering into the certified milk business. To the dairyman who is properly located and able to finance it, and who will give it careful and minute attention, it will prove a satisfying and remunerative method of disposing of his milk when he has established his trade.



PASTEURIZED MILK AND THE BEST APPLIANCES THEREFOR

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The process of pasteurization when applied to dairy work consists in heating milk or cream to a certain temperature for a given time and then cooling it to a temperature sufficiently low to prevent germ growth. The cooling process is just as much a part of pasteurization as the heating process. Pasteurization differs from sterilization in that the latter process kills all germ life in and about the material, while the former kills only a part of the germs.

The object of pasteurizing milk is twofold; first, to check germ growth, and second, to kill disease organisms. Creameries pasteurize cream in order to kill all germs possible and then a culture of lactic-acid organisms is added to produce the desired quality of the products. Pasteurization enables the creameryman to obtain more uniform results than are otherwise possible.

Milk is a natural medium for germ growth and if it is left at the proper temperature, with even a small initial contamination, the number of germs increases in a few hours to such an extent that the milk soon becomes unfit for use. Pasteurization kills most of the germs; if after this process the milk is cooled and held at the proper temperature, the few remaining germs do not multiply and the result is a small germ content.

Pasteurization to check germ growth may be a perfectly legitimate process, under proper conditions; yet the best reason for pasteurization is to kill disease-producing organisms.

One of the principal pathogenic organisms to be considered in this connection is the one producing tuberculosis. It is now admitted by some of the best authorities that bovine tuberculosis is transmissible to man. The best proof of this assertion is found in infant hospitals and asylums, where the inmates have been fed almost exclusively on cow's milk bought in the open market. In such institutions tuberculosis of the throat is comparatively com-



FIG. 20.— REID CONTINUOUS PASTEURIZER.



mon. It is fortunate that other disease-producing germs, such as those of typhoid and diphtheria, are comparatively rare in milk; yet many epidemics of contagious diseases have been traced directly to a contaminated milk supply. For these reasons, pasteurization is very desirable in preventing a spread of contagious diseases. It is a fortunate circumstance that the germs which cause most contagious diseases are killed at temperatures ordinarily employed in pasteurization.

There are two main processes of pasteurization. One is called the "flash," or continuous method, and the other the holding method. In the first named, the milk is subjected to a high temperature for a very short period of time, usually less than one minute. In the second the milk is subjected to a low temperature for a comparatively long period of time. The longer milk is exposed at any given temperature, the better are the results of pasteurization considered from the standpoint of destroying bacterial life. Unfortunately, milk can not be subjected to a high temperature for even a comparatively short time without acquiring a cooked flavor that is objectionable. While there is considerable dispute concerning the question, it is quite certain that if milk is heated to high temperatures its chemical composition is very materially changed and the milk is rendered less digestible. The albumen in normal milk is in solution, but if milk is heated to a temperature of 160 degrees F. or above, the albumen is coagulated. This renders it less desirable for human consumption than when it is in its natural state; especially for infant feeding. Chemists say that if milk is heated to high temperatures, the lime salts in it are changed and rendered less digestible. It is rather hard to determine to just how high a temperature milk must be heated in order to acquire a cooked taste. It has been stated by several authorities that a temperature of 158 degrees F. for any length of time will produce this objectionable flavor.

In the flash or continuous method, milk is often heated to 165 degrees F. In the holding method, one of the most common temperatures used is 140 degrees F. for twenty minutes. This temperature and this length of time have been found sufficient to kill tuberculosis organisms. In the flash method, the length of time during which milk is exposed to the desired temperature is so

short, that in some cases all of the milk does not reach the proper temperature; consequently the destruction of all disease organisms is not insured and the process is inefficient.

There are two kinds of germs that ordinarily enter milk and play an important part in the length of time during which milk will keep and in the effect of milk on the human system. One kind is known as the acid-producing type and the other as the putrefactive type. The presence of acid in milk is due to the result of the action of certain kinds of germs on milk sugar, converting the sugar into lactic acid. While these germs sour milk, they are not considered harmful and by many persons they are regarded beneficial to the system. The putrefactive kinds are undesirable. The prevalence of bowel disorders is due oftentimes to these organisms; especially in infants. The lactic-acid organisms are killed more easily than the putrefactive types; therefore in the flash method of pasteurization the acid organisms are killed, leaving the putrefactive types to multiply. The presence of a large number of lactic-acid organisms is indicated by the souring of the milk, but there is no way of detecting the presence of putrefactive types except by bacteriological examination. The milk is apparently fit for consumption, but after it is taken into the system the putrefactive organisms cause illness. It may be said that the flash method of pasteurization tends to remove the danger signals—lactic-acid organisms—which give warning when the milk is becoming old or has been contaminated, or improperly kept. The holding method of pasteurization does not impart a cooked flavor to the milk when thoroughly done and it is more efficient than the flash method in destroying organisms.

There are several conditions that affect the thoroughness of pasteurization,—the length of time for which milk is heated, the temperature to which it is heated, and the type and number of organisms therein. The length of time during which milk is heated and the temperature to which it is subjected need no further discussion.

Some organisms have the characteristic of going into a resistant stage when subjected to unfavorable conditions. This is called the spore stage and organisms that form spores have been known to withstand for twenty minutes a temperature much



higher than that of boiling water. After the unfavorable conditions are removed, the spore-bearing organism again assumes its natural form and continues to multiply. If milk is badly contaminated with spore-bearing bacteria, many of the germs remain alive after pasteurization, rendering the process inefficient.



FIG. 21.—WIZARD STARTER CAN MAY BE USED AS A PASTEURIZER.

The number of organisms in the milk before pasteurization also has a material influence on the results of the process. If pasteurizing milk at a certain temperature for a certain length of time kills a given percentage of the organisms in the milk, then other things being equal, the more germs there were before pasteurization, the more there will be left after the process is completed.

There are several objections to pasteurization. In the first place, it allows the concealing of dirty methods. The danger from contaminated milk does not always lie in the presence of the germs themselves, but in the products of germs, and while pasteurization may kill the germs, it does not remove their effects. Consequently, if milk has become badly contaminated before pasteurization; although nearly all the germs in the milk are killed by the process, their products may still render the milk unfit for human consumption.

Another objection to pasteurization is the fact that often the work is imperfectly done and it has already been pointed out that an incomplete process of pasteurization may result in leaving the putrefactive types of bacteria in the milk. This is the fault of the operator, not of the method.

It can not be denied that there is great danger of contamination of the milk supply in cities, particularly in large cities; and if the process of pasteurization is properly carried out, it is probable that good results far outweigh the harmful ones. Pasteurizing milk with the idea in view of killing disease germs is much more worthy than pasteurizing it merely in order to check germ growth. It cannot be emphasized too strongly that *milk intended for pasteurization should be as clean and as free from contamination as possible*. The idea is sometimes prevalent that, even if the milk is badly contaminated and has a high germ content, pasteurization will remedy it. This idea has often led to disappointment in pasteurized milk and has brought it into disrepute.

The actual process of pasteurization may be considered under three heads; namely, pasteurization in city milk plants, pasteurization on the farm and pasteurization in the home.

In city milk plants, machines are used which are capable of pasteurizing large quantities of milk in a short time. There are a number of different machines of this type on the market, some of them working by the flash method and others by the holding method. See Fig. 20.

Up to the present time, very little milk has been pasteurized on farms. The main condition that would stimulate the farm pasteurization of milk would be the requirement for pasteurized milk in the village or the city in which the milk produced on the farm was peddled by the producer. The boards of health of most villages and cities are recognizing the value of the holding method over the flash, or continuous method of pasteurization, and it is unfortunate that no machine has been devised, which seems exactly suitable for pasteurizing by the holding method in a small dairy.

Probably one of the most satisfactory methods of pasteurizing milk on the farm is by performing the process directly in the milk can. The can may be placed in a vat of water which is heated by means of a steam hose or over a fire. It is necessary that the milk be constantly stirred while it is being heated. If it were not stirred, a much higher temperature would be necessary to bring all parts of the milk which are in the container



to the proper temperature, with the result that the milk which was next to the inner surface would become superheated and a disagreeable cooked flavor would result. Some milk producers and small city milk dealers are finding an ordinary starter can may be useful for pasteurizing small amounts of milk. Such a can is pictured in Fig. 21.



FIG. 22.—WILMOT CASTLE HOME PASTEURIZER.

consumption. Two types are shown in Fig. 22 and Fig. 23. Most of these home pasteurizers are designed to pasteurize milk for infant feeding and the milk is placed directly in a feeding bottle and does not need to be removed. This renders the milk less liable to contamination after pasteurization is completed.

It is not necessary to purchase a special apparatus for pasteurizing milk for infant feeding. The process may be performed in an ordinary milk bottle, set in a pail of water. The pail of water is placed on the stove and the operator can keep himself informed of the temperature of the milk by means of a thermometer that has previously been thoroughly scalded in boiling water. The bottle, or other container of the milk, should not rest directly on

Pasteurization in the home is becoming more and more common where cow's milk is used for infant feeding. When it is necessary to use milk of uncertain origin this practice cannot be too strongly recommended. It has already been pointed out that bovine tuberculosis is transmitted to human beings and infants are easily susceptible to such transmission. It is, therefore, unsafe to feed cow's milk to an infant when the animal producing the milk has not been tuberculin tested. There are now on the market several kinds of apparatus for pasteurizing small quantities of milk for infant feeding and for home consumption.

the bottom of the pail. Two bricks or similar objects, placed on edge and just close enough together so that the bottle will rest on them, will serve to keep the bottle away from the bottom of the pail. If the bottle rests on the bottom of the pail, the heat produced will cause it to jolt up and down; resting it on some object as above described will prevent this.



FIG. 23.—FREEMAN PASTEURIZER.

Care must be taken not to contaminate the milk in any way after it has been pasteurized. When milk is pasteurized at home it is often contaminated by being stirred with spoons or by having placed in it thermometers that have not been thoroughly scalded. The practice of performing the process directly in the bottle is being followed in order to prevent contamination of milk after pasteurization. The bottles are filled with milk and placed



in a tank of water, the temperature of which is raised as fast as possible to the desired point. After holding at the desired temperature for the proper length of time, the warm water in the tank is exchanged for cold water as fast as is possible without breaking the bottles. When cooled sufficiently, the bottles may be removed from the tank and packed in ice. From a sanitary standpoint this method is a good one.

No matter what method of pasteurization is used — whether in the milk plant, on the farm or in the home — the milk should be heated to the proper temperature as quickly as possible. After heating, it should be cooled to 50 degrees F. or below, as rapidly as possible. Very frequently, after the heating part of the process of pasteurization is completed the vessel containing milk is removed from the water and the milk is allowed to cool without any particular pains being taken to hurry the process. The milk will cool rather rapidly for a time, until it reaches a temperature in the neighborhood of 100 degrees F. It then begins to cool more slowly and it remains for a long time at the temperature at which germs grow best. If the process of pasteurization did not kill all the germs, even though there were only a few remaining, the fact that the milk was not cooled so rapidly as it should have been would make it possible for the germs again to begin multiplying and the milk would soon be badly contaminated.

SANITARY ECONOMICAL APPLIANCES IN CLEAN MILK PRODUCTION

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All changes occurring in milk are due to the action of small plants called bacteria. In the case of a diseased udder, some bacteria come from the cow. Most bacteria, however, enter milk after it is drawn, the most common sources being the dust in the air, the body of the cow, the person of the milker and dirty utensils. Bacteria are carried from one place to another on particles of dust and dirt, so that by keeping dust and dirt out of milk, the entrance of bacteria is prevented.

Unfortunately, the production and handling of clean milk is associated with the idea of a large outlay of money. It costs very little more to produce reasonably clean milk than to produce dirty milk. In order to produce clean milk the dairyman must know what constitutes cleanliness and then must use common sense in applying sanitary principles.

Fresh air and sunlight are two cheap and effective agencies in the production of clean milk. Most germs do not flourish in a well-ventilated, well-lighted stable. In lighting a dairy building of any kind, attention should be paid to the distribution, as well as to the amount of light. A dairy barn should have at least four square feet of light for each cow. However, many barns containing this amount of glass, have the light so poorly distributed that a part of the building is comparatively dark. This not only makes the performance of work more difficult, but also makes extra precautions necessary in keeping the dark places in a sanitary condition.

A cloth curtain is a cheap and effective method of ventilation. The exact principle on which a cloth curtain acts as a ventilator is disputed, but its action is supposed to depend on the tendency of gases of different densities to pass through a porous membrane. The cloth curtain allows fresh air to enter a stable without producing a draft on the animals. It is well to have curtain ven-

tilators on at least two sides of the barn and the openings covered by curtains should be large enough to supply fresh air at all times. If it is desirable to partially close the openings because of cold weather, a wooden slide door built in front of each curtain will accomplish the purpose. Cloth curtains should never be installed in the place of windows. While the curtain does admit some light, it does not to any extent take the place of glass for lighting purposes. One objection to cloth-curtain ventilators is that they collect dust and dirt and in order to prevent their becoming a source of contamination they should be renewed occasionally.

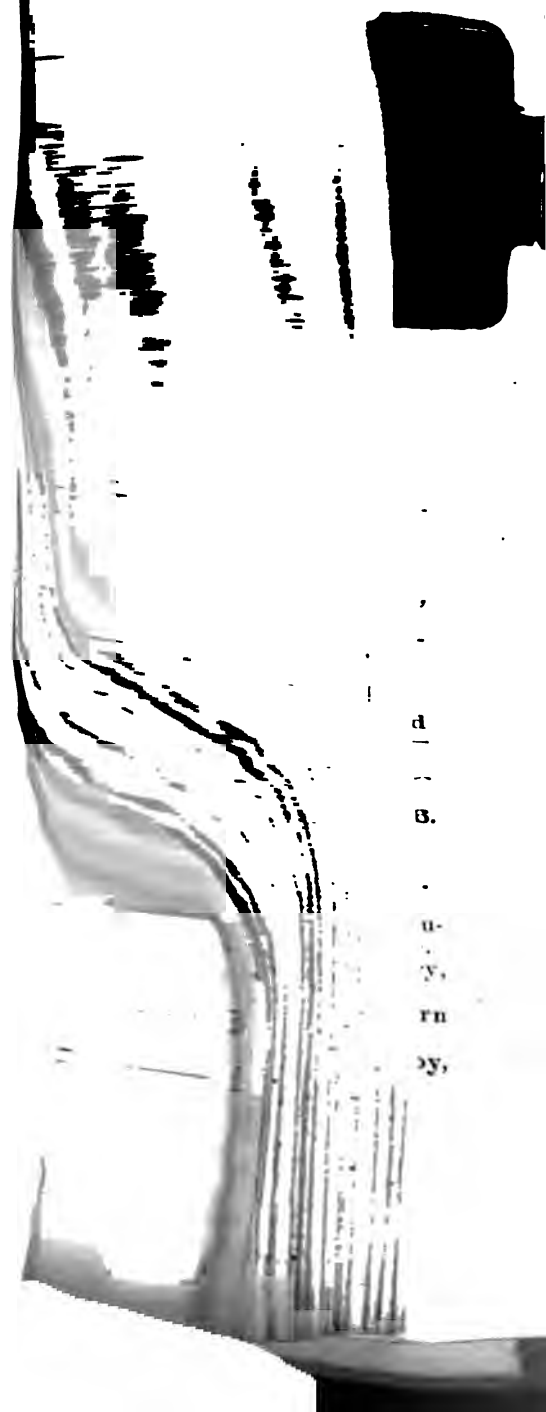
In the construction of a dairy barn, special care should be taken to have as few ledges and cracks as possible. In ceiling a barn, plain matched ceiling is much cheaper than beaded matched ceiling and the former is far more sanitary than the latter, because it does not furnish cracks in which dust will lodge. It is desirable to have the ceiling over the stable dust-proof. An old barn, in which the timbers are uneven, is difficult to ceil with matched lumber. In such an instance, a good, heavy grade of building paper may be used to advantage. The strips should overlap by a good margin and the paper should be whitewashed. This makes a clean, dust-proof ceiling, and while it is not so durable as wood, all or any part of it may be replaced at small expense.

Objectionable ledges, such as those formed by the sills of a barn, may often be partially removed by fastening a smooth board in a slanting position over such a ledge. This board forms a steep roof over the ledge and dust and dirt will not stick to it so easily.

It has already been stated that many germs enter milk from the body of the cow. Particles of dust and dirt are loosened during milking and since these particles carry almost numberless quantities of germs, they are one of the most serious sources of contamination. If the udder and the flanks are wiped with a damp cloth just before milking it will prevent much of this dirt from falling into the milk pail. The coarser particles are wiped off and the finer particles, being damp, are not so easily loosened by the process of milking. A cow should always be cleaned with a comb and brush at least an hour before milking. This will allow the dust to settle that is raised by the process of cleaning.



FIG. 24.—DIFFERENT TYPES OF SANITARY MILK PAILS.



We can not say too much in favor of using a small-top or covered milk pail. This kind of pail has been found, by actual experiment, to prevent the entrance into milk of from 50 to 90 per cent. of the bacteria that would otherwise be present. It is unfortunate that there is a prejudice against it because of a supposed difficulty in using the small-top or covered pail. After careful inquiry into this question we have never found a single dairyman who has objected to it after having become accustomed to its use.

Some types of such pails are more practical than others and the kind to be used should be decided by each individual dairyman. It is true that there have been put on the market so-called "sanitary" pails that were impractical; but several types of practical sanitary pails are now offered for sale at a reasonable price. The dairyman could have a cover for an ordinary wide-mouthed pail made at a local tin shop. In this way the producer can follow his own ideas as to how a sanitary pail should be made. It is important to have all the seams well flushed with solder so that no cracks nor crevices are left, for these cracks and crevices increase the difficulty of keeping the pail clean. This is equally true of all dairy apparatus. The practice of using a small-top or covered pail and of wiping the udder with a damp cloth just before milking, should be followed by every dairyman. There is probably nothing more inexpensive and at the same time, more effective in keeping germs out of milk, than these two things.

Nearly all the germs that get into milk grow best at temperatures ranging from 70 degrees to 100 degrees F. For this reason, it is necessary to cool milk as soon as it comes from the cow. Some germs multiply every twenty minutes under favorable conditions, and nearly all the conditions favorable for germ growth are found in freshly drawn milk. If milk had only a few germs in it when drawn and were not cooled to a sufficiently low temperature, it would in a few hours contain countless numbers of bacteria and become unfit for use. The colder milk is kept without being frozen the better, and it should be cooled to at least 50 degrees F.

One of the simplest methods of cooling milk is by placing it in a tank of ice water. If it is cooled in this way, the milk must be stirred frequently, otherwise, the cooling process will be very slow and therefore inefficient. This is illustrated in an experiment performed on two cans of milk. Each can contained 83 pounds of milk. The cans were heated to 95 degrees F. and set side by side in a tank of ice water. Can No. 1 was stirred every ten minutes; can No. 2 was not stirred at all. At the end of an hour the temperature of the milk in can No. 1 was 55 degrees F. and that of the milk in can No. 2 was 73 degrees F. Unless a large amount of ice is used in proportion to the amount of milk being cooled, the ice water in the tank should also be stirred frequently.



FIG. 25.— CONICAL MILK COOLER.

There are many kinds of mechanical coolers on the market. Fig. 25 represents a type of conical cooler. Ice water is placed inside the cooler and the milk is poured into the receiving tank at the top and runs through small holes over the conical surface. In order to obtain any where near the efficiency of the cooler, it is necessary to frequently stir the ice water inside. This is illustrated by an experiment in which milk was run over the cooler at different times. Each time the milk was heated to 100 degrees F. The first time, the ice water in the cooler was not stirred and the milk was cooled to only 68 degrees F. The second time,

the ice water in the cooler was stirred and the milk was cooled to 57 degrees F. In each case twenty-five pounds of milk were used.

Fig. 26 represents a type of tubular cooler designed to be used with running water. Frequently the water supply in a dairy is sufficiently cold to reduce the milk to a proper temperature, or at least to a temperature low enough so that only a small amount of ice is required to bring the temperature of the milk down to 50 degrees F. or below. Coolers of this type are connected with a brine cooling system in large dairy systems.

Coolers of either of the above types, large enough for an ordinary dairy, may be purchased at a very reasonable price. Their advantage over a tank is, that they very materially hasten the process of cooling.



FIG. 26.—TUBULAR MILK COOLER.

One precaution must always be observed in cooling milk — the work must be done in a place free from dirt and bad odors. If the coolers above described are used in a place exposed to dust and dirt, they at once become sources of contamination. This is in no way the fault of the apparatus, but of the careless operator.

In order to produce clean milk, it is necessary to have the dairy utensils as nearly sterile as possible. By "sterile" is meant, that all living things in and about an object have been killed. It is very seldom that all bacteria on a dairy utensil have been killed, but with a reasonable degree of care, it is possible to kill most of them.

Live steam is the most effective form in which to apply heat for sterilization. Since steam is not always available

on a small dairy farm, scalding hot water may be used. It is very effective in killing germs. The great disadvantage in the use of hot water is that the water is not used hot enough. It is a poor practice to try to sterilize several pieces of dairy apparatus by pouring the water from one utensil to another. By the time the water is poured into the last utensil it is usually only luke warm. A much better method is to heat the water in a large boiler or tank and then immerse all the utensils possible in the water, leaving each one for at least one minute. The large utensils should be thoroughly scalded with boiling water taken directly from the boiler for each separate utensil. After they are scalded the utensils should be stored in some light, clean place, where they will be protected from dust, flies and other sources of contamination.

While the apparatus and methods described are simple and inexpensive, they are at the same time effective in the production of clean milk. A large amount of money is not a necessity in the production of clean milk and more depends on the methods of the producer than on the apparatus used.

THE MILKING MACHINE

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The manual labor problem is a most troublesome one for the farmer to solve. As the years go by, it is becoming increasingly more expensive and more difficult to secure efficient, dependable help in any line of farming; this is especially true in the matter of satisfactory help in milking. This difficulty has doubtless materially retarded the development of the dairy industry; for the size of the dairy, except in rare instances, is determined by the number

of cows the owner can attend to at such times as his help fails him. The last census shows that in the state of New York, on farms where 40 per cent. or more of the income is derived from the sale of dairy products, the average number of cows per farm is less than fourteen. Moreover, nearly one-third of the cows in the state are on farms not included in the above class, and on those farms the average is less than five cows per farm.

If the dairyman could feel himself independent of hired help in the matter of milking, the number of cows kept on dairy farms would increase to the limit of the ability of the acreage to feed the animals economically. Instead of fourteen cows per farm, the average would probably be more than double that number. Dairying would then become a business on such farms, to be carefully studied and run on business lines instead of being a minor matter to be little studied and less understood; as is now too often the case. During the past few years many of the common farm operations have been made much easier and very much cheaper because of the improved machinery which has been perfected for agricultural purposes. These conditions have proven

the need of a machine to milk the cows. Because of the immense economic importance of the question of milking, a keen interest has arisen in the milking machines which have been put on the market during recent years. The records of the patent office show that a large number of inventors, both in this country and abroad, have been at work on the problem and have brought out a multitude of mechanical devices for milking cows. The problem has been a difficult one to solve. A number of machines have been successful in extracting the milk from the cow by either pressure or suction or by the two combined, but have fallen short of being practical in some vital point. The nervous, sensitive disposition of the individual cow, together with the lack of uniformity in the size and form of the udder and teats, has made it very difficult to invent a machine which would milk different cows satisfactorily.

Several such machines have been placed on trial on dairy farms and at some of the experiment stations. The machines, after being used under ordinary farm conditions for a time, have, in many cases, not given satisfactory results. The question is now being frequently asked, "Are the machines at present on the market practical and will they prove a success under ordinary farm management?" There is no specific answer to such a general question. It can only be answered by a careful test covering quite a length of time. In order to answer these questions with some degree of intelligence, the New York Agricultural Experiment Station purchased a Globe Milking Machine in 1906 and started using it upon some of the Station herd. This machine was found to be unsuccessful in practically every particular and its use was dropped. In the spring of 1907, a Burrell-Lawrence-Kennedy Milker was purchased and has been in constant use since that time.

Since the accurate study of a milking machine requires that it be under observation for a considerable time, it is manifestly impossible for one station to test all of the various makes which are on the market. Practically all milking machines fall into one of two general classes: (1) Those which mechanically force the milk from the teat after the manner of hand milking and (2) those which depend upon the action of a vacuum producing

an effect similar to that of the mouth of the calf. The machine used in the work reported here was a representative of the latter class, so that the results here obtained may not apply to machines of the other class. While some representatives of the teat-compressing milkers are in use in this country, all of the tests of milking machines thus far reported, with the exception of those of the Murchland and Thistle at Guelph, have been made with the same class and make of milkers as that used in this work. Therefore, the results obtained here and at other stations are fairly comparable.



FIG. 27.—PARTITION TYPE BURRELL-LAWRENCE-KENNEDY MILKING MACHINE.

The milking machine appears to have first gained an extensive foothold in Australia. McMillan states that the Hawkesbury Agricultural College at Richmond, N. S. W., had used such machines continuously in its dairy since about 1902. He gives comparative yields of eight cows during two-week periods in

which they were milked by the machine and by hand respectively, but these results do not show that the machine exerts any influence on the flow. He also states that after using the machine for nine years,—on some cows through five lactation periods,—no objectionable results were evident. The earliest studies of milking machines at an American experiment station were probably those made at Guelph, Canada. The Murchland, a suction, non-pulsating machine, was tried in 1895 but was soon pronounced a failure. In 1898, the Thistle, a combined suction and squeezing machine, was tested and rejected because of the difficulty of cleaning it. During 1906 the Burrell-Lawrence-Kennedy machine was used and comparisons made between yield from cows milked during alternate periods by the machine and by hand. The number of cows ranged from five to fifteen during the different periods and the test periods were from ten days to a month long. The average results were in favor of hand milking in all the tests except one. In a 1906 Kansas station bulletin the history of the development of the milking machine is traced. In a series of 32 tests to compare the thoroughness of milking, it was found that the average cow milked by a machine is milked slightly cleaner than by average hand milking. The duration of the tests or data are not given. In a United States Department of Agriculture bulletin, 1907, comparison was made by milking cows by hand and by machine during alternate ten-day periods. On a farm where the cows had been milked with a machine for about three years a slightly larger flow was obtained by the machine. On a second farm, where the machine had been used a shorter time, slightly more milk was obtained by hand. In a Storrs bulletin, 1907, a comparison was made contrasting the observed shrinkage for nine weeks. The shrinkage when the machine was used was slightly larger than that of other cows milked by hand. At the Pennsylvania Station in 1908 two equal lots of five cows each were milked by hand and by machine. At the end of four weeks the manner of milking each lot was changed. The test was continued 16 weeks, changing at the end of each 4 weeks. No difference in yield of milk was observed that could be attributed to the milking machine. At the Tennessee Station in 1908, after an 18-month use of the milking machine, the yields with

machine milking were with some cows greater and with some cows less than the yields of the same cows previously milked by hand.

In the Nebraska experiment in 1908, after a number of short term trials, the investigators concluded that the two methods of milking are so radically different in operation that when the milker was substituted for hand labor the cows did not milk out completely. Yields were also given for full lactation periods in



FIG. 28.—MAN PUTTING TEAT-CUPS ON COW.

which the machine was used and compared with other hand-milked periods. With ten of the eleven cows contrasted, the yield with machine milking was less than the hand milking records.

A Wisconsin bulletin, 1908, contrasts the results obtained by machine milking with the yields obtained in corresponding periods of lactation from the same cows when milked by hand. The results agree so closely that they may be considered identical for all practical purposes. It will be noted in all of these trials, except in Nebraska, that the comparisons were made on the basis of

short-period tests of the two methods of milking and in practically all cases the cows used were not accustomed to milking machines. It is a well understood fact that cows are averse to changes in milking or caring for them and for that reason, if no other, it is difficult to get a fair comparison of the two methods following that system. The main difficulty in measuring the effect of any method of milking lies in the fact that the cow can be milked by only one method at a time. The use of the lactation period appears to be the fairest method of comparison, but in this the production of a cow during any period is influenced by



FIG. 29.—MILKERS IN OPERATION.

a number of factors in addition to the manner in which she may be milked. Assuming that her feed is carefully controlled, the most important disturbing factors are her health, length of interval between lactation periods and age. These difficulties in obtaining an accurate measure of the influence of machine milking can be best met by studying the effect on a number of cows for several years, arranging the details so as to neutralize the disturbing factors so far as possible.

The Burrell-Lawrence-Kennedy machine arranged for milking two cows simultaneously was used in the work reported from the New York State Station. There are three main parts to the

milking plant, an appliance to produce a vacuum, the vacuum system and the milker. The air pump is efficient for creating a vacuum and may be operated by a two-horse electric motor or a small gasoline engine. Connected with the pump by suitable piping is a 50-gallon air-tight galvanized iron tank with a safety valve and regulator to maintain a uniform vacuum of $15\frac{1}{2}$ inches, which we have found to give the best results with our cows. The piping runs in front and above the cow stalls.

Between each two cows is placed a stop cock to which the milker may be attached. The milker, which is the primary factor in the milking machine plant, consists of a heavy tin receptacle surmounted by a tightly fitting cover, which supports the mechanical parts of the milker. These are a pulsator, sight glasses, and connectors or milk cocks. The pulsator is made up of a dome containing a vertical piston which intermittently cuts off the vacuum when the milker is in operation. Rubber tubes attached to the milk cocks lead to a cow on either side of the milker. Each tube leads to a connector which provides attachment for four smaller tubes each ending in a teat cup. These last are funnel-shaped metal pieces which surround and support the teats and are provided at the upper end with rubber mouth-

pieces that prevent the entrance of air at that point when the cups are on the teats. A half-inch hose five or six feet long connects the milker with the stanchion cock on the piping system.

In operation the pump draws the air out of the piping system, the stanchion cock is opened exhausting the air from the pail and by opening the milk cocks the vacuum is extended to the teats of the cow. When



FIG. 30.—VACUUM PUMP.

the milking machine has been connected with this vacuum system and placed in operation, the piston in the cover of the pail automatically interrupts the connection between the

vacuum system and the teat cups about once per second, the exact rate being under the control of the operator. During the brief period in which the vacuum acts upon the teat the muscle at the end of the teat relaxes and the milk in the teat flows out into the tube at the base of the teat cup. During the alternate periods in which the vacuum is interrupted, the opening at the end of the teat closes and the teat refills from the milk cistern above it. In the older type of machine from six to eight sizes of teat cups were required to fit the cows of our herd, but with the new form one size of cup milks the herd more efficiently than did the many sizes previously used. This, of course, simplifies work with them and shortens the time needed. With these cups also, the amount of strippings from the cows has been reduced to a practically negligible amount; and with them two cows were milked that would have been dropped from a hand-milked herd, one having very short, small teats, the other being a very hard milker. In 1906-7 the cows in the Station herd were milked by hand and in 1907-8 by machine, but since such alternate-year comparisons of hand and machine milking could not equalize the influence of advancing age of the cows and climatic conditions affecting food supply, it was thought best to divide the herd in halves as the cows freshened in 1908-9 and to milk each cow by hand and machine in alternate periods of lactation. In this division the herd was balanced as carefully as possible with regard to age and productive ability; and in subsequent changes due to the dropping out of cows by reason of age, accident, illness, sterility, etc., and the addition of others to maintain the herd, the same idea of preserving the balance has been kept in mind.

TABLE I.—ANNUAL AND TOTAL VARIATION IN MILK YIELD APPARENTLY DUE TO METHOD OF MILKING (NEW YORK STATE STATION).
(Includes all satisfactory data.)

NUMBER.	Hand, 1906.	Ma- chine, 1907.	Hand, 1908.	Ma- chine, 1908.	Hand, 1909.	Hand, 1908.	Ma- chine, 1909.	Hand, 1910.	Hand, 1909.	Ma- chine, 1910.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1.....	5,821	6,456	.....	7,455	7,595	.....	.....	.....	7,595	5,676
2.....	5,247	4,765	6,085	.....	.....	.....	.....	.....	.....	.....
3.....	7,009	6,918	5,970	.....	.....	.....	.....	.....	.....	.....
4.....	4,870	4,208	6,310	.....	.....	6,310	3,502	7,194	.....	.....
5.....	3,836	3,431	.....	.....	.....	.....	.....	.....	.....	.....
6.....	4,187	5,305	.....	.....	.....	.....	.....	.....	.....	.....
7.....	8,541	7,583	.....	.....	.....	.....	.....	.....	.....	.....
8.....	7,649	7,434	7,366	.....	.....	7,366	6,746	9,446	.....	.....
9.....	11,596	9,795	9,059	.....	.....	.....	.....	.....	.....	.....
10.....	6,557	10,751	.....	.....	.....	.....	.....	.....	.....	.....
11.....	6,643	7,170	6,027	.....	.....	6,027	6,928	.....	.....	.....
12.....	7,844	8,881	7,792	.....	.....	.....	.....	.....	.....	.....
13.....	5,429	5,588	.....	7,136	8,492	.....	.....	.....	8,492	6,961
14.....	6,601	5,704	.....	.....	.....	.....	.....	.....	.....	.....
15.....	7,106	7,067	.....	.....	.....	.....	.....	.....	.....	.....
16.....	.....	.....	.....	.....	.....	6,920	6,808	.....	.....	.....
17.....	.....	.....	.....	.....	.....	.....	.....	.....	7,217	6,683
18.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19.....	.....	.....	.....	.....	.....	.....	.....	4,302	.....	.....
20.....	.....	.....	.....	.....	.....	5,533	5,798	8,175	.....	.....
21.....	.....	.....	.....	5,733	5,344	.....	.....	.....	5,344	5,347
22.....	.....	.....	.....	6,391	6,895	.....	.....	.....	6,399	6,589
23.....	.....	.....	.....	.....	.....	.....	.....	.....	5,121	6,778
24.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25.....	.....	.....	.....	.....	.....	.....	.....	8,021	4,785	6,318
26.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	98,936	101,056	49,171	26,715	28,326	32,156	29,782	37,138	44,923	44,342
Group balance.....	.....	2,120	562	.....	1,611	2,374	.....	4,178	581	.....
Annual balance.....	.....	2,120	562	.....	.....	3,985	.....	.....	4,759	.....

Final balance (in favor of hand milking), 6,062 lbs.= 1 per cent. of total (574,114).

TABLE II.—YIELDS OF COWS MILKED BY HAND AND MACHINE (NEW YORK STATE STATION).
(Including only balanced periods for each cow.)

NUMBER.	Hand, 1906.	Machine, 1907.	Hand, 1908.	Machine, 1908.	Hand, 1909.	Machine, 1909.	Hand, 1910.	Machine, 1910.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1.....	5,821	6,456	.....	7,455	7,595	.....	.....	.....
2.....	5,247	4,765	.....	.....	.....	.....	.....	.....
3.....	7,009	6,918	.....	.....	.....	.....	.....	.....
4.....	4,870	4,208	6,310	.....	.....	3,502	.....	.....
5.....	3,836	3,431	.....	.....	.....	.....	.....	.....
6.....	4,187	5,305	.....	.....	.....	.....	.....	.....
7.....	8,541	7,583	.....	.....	.....	.....	.....	.....
8.....	7,649	7,434	7,366	.....	.....	6,746	.....	.....
9.....	11,596	9,795	.....	.....	.....	.....	.....	.....
10.....	6,557	10,751	.....	.....	.....	.....	.....	.....
11.....	6,643	7,170	6,027	.....	.....	6,998	.....	.....
12.....	7,844	8,881	.....	.....	.....	.....	.....	.....
13.....	5,429	5,598	.....	7,136	8,492	.....	.....	.....
14.....	6,601	5,704	.....	.....	.....	.....	.....	.....
15.....	7,106	7,067	.....	.....	.....	.....	.....	.....
16.....	.....	.....	6,920	.....	.....	6,808	.....	6,683
17.....	.....	.....	.....	.....	7,217	.....	4,302	.....
18.....	.....	.....	.....	.....	.....	7,392	8,175	.....
19.....	.....	.....	.....	.....	.....	8,156	.....	.....
20.....	.....	.....	5,533	.....	.....	5,798	.....	.....
21.....	.....	.....	.....	5,733	5,344	.....	.....	6,589
22.....	.....	.....	.....	.....	6,369	.....	.....	.....
23.....	.....	.....	.....	6,391	6,895	.....	.....	6,778
24.....	.....	.....	.....	.....	5,121	.....	8,021	.....
26.....	.....	.....	.....	.....	.....	7,174	4,785	.....
29.....	.....	.....	.....	.....	.....	6,318	.....	.....
Totals.....	98,936	101,056	32,156	26,715	47,033	58,872	25,283	20,050
Total machine.....	.....	.....	.....	.....	.....	.....	.....	206,693
Total hand.....	.....	.....	.....	.....	.....	.....	.....	203,408
Balance (in favor of machine).....	.....	.....	.....	.....	.....	.....	.....	3,285=0.8 per cent. of total (410,101).

The work has now been carried through the lactation periods for 1910-11. In all, 29 cows have been compared during two or more lactation periods, including five periods each for five cows, four periods each for three cows, three periods each for nine cows and two periods each for twelve cows, making 88 complete lactation periods. During 43 of these periods the cow was milked by hand and during 45 by machine. Taking the data just as they stand and comparing the yields when any cow was milked by the two methods during successive periods, it would appear that 32 such comparisons favor hand milking and 23 favor machine milking. But it is hardly fair to include all the data. In the several years through which the tests ran, the yields of several of the cows were abnormal for at least one lactation period, owing to mishaps



FIG. 31.—TEAT-CUP AND MOUTHPIECE.

of one kind or another. Six young cows calved prematurely and three suffered so severely from indigestion that their yields were seriously affected. Leaving out these abnormal lactation periods there remain 24 comparisons in favor of hand milking and 19 favoring the machine. These figures apparently indicate a slight gain in production in favor of hand milking; but, as will be shown later, the actual mathematical differences in yield are so slight, considering the two groups as a whole, that the omission of a

very few cows whose yield showed great fluctuation would shift the balance in either direction.

As shown in Table I, which includes all the data unaffected by noticeable disturbing factors, the final balance in favor of hand milking is only 6,000 pounds, merely the slightest fraction over 1 per cent. of the total production.

In making the table several of the cows were included that were milked more periods by one method than by the other, which might be considered unfair; so in Table II the comparison is restricted to an equal number of lactation periods for each cow by each method.

As will be seen, this method of handling the data throws the balance toward machine milking, but again the difference is too slight to have any meaning, since it is less than 1 per cent. of the

whole yield. In other words, the effect of milking upon the productivity of the cows is less than the normal fluctuation in yield from year to year due to such marked variation in yield of individual cows as might occur in any herd of considerable size. Of four cows milked by machine in 1906-7 and again in 1907-8 after division of the herd, one showed a change of 1,000 pounds in flow the second year, and another a change of 1,500 pounds; while data from Maine Station reports show a change of 5.6 per cent. in yield of a herd of 13 cows in successive years, and similar data from Wisconsin from a herd of 27 cows show a change of more than 1 per cent.

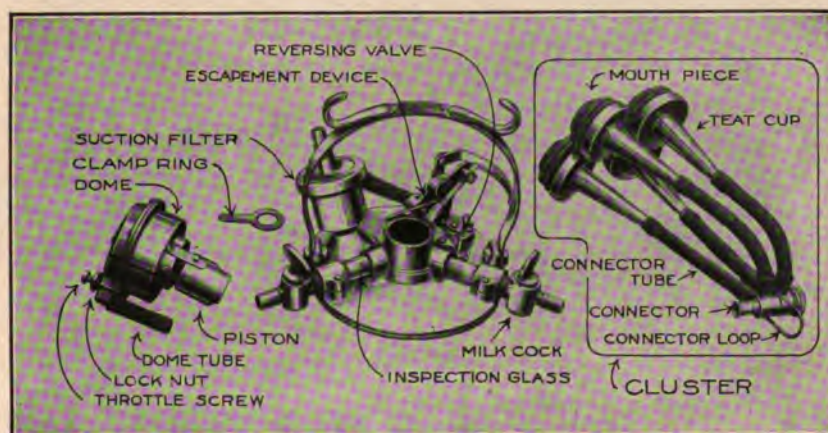


FIG. 32.—PULSATOR PARTS OF BURRELL-LAWRENCE-KENNEDY MILKING MACHINE.

From this work, then, extending over five years and including a large number of lactation periods, the only conclusion possible to draw is that machine milking, if properly done, does not influence the flow of milk to any extent capable of measurement. Of course, poor management of the machines and careless handling might bring down yields; but so also a careless, inefficient hand milker may "dry off" a good cow in a few weeks.

It is undoubtedly true that not every good hand milker would be able to handle a machine with equal success; but no remarkable qualities are necessary for efficient machine management. During the tests of the B-L-K machines at the Station, six men have run

them for periods varying from three months to three years and none of them have failed to do quite satisfactory work with the milkers. These men probably represent fairly well the better class of farm workmen; and none were selected for any special ability to operate machinery. The essential qualities in running a milking machine are merely carefulness, willingness to follow instructions and reasonable intelligence with quickness to detect any little variation in the running of the machine.

With the present day demand for clean, sweet, healthful milk, any mechanical device the use of which increased the number of bacteria in the milk produced would not be generally used however efficient and economical it might be in milking the cows. This was a serious defect in milking machines first on the market. The first machine tested at this Station, the Globe, could not be kept clean easily, which, with other faults, condemned it; and with the earlier types of the milker now in use, the Burrell-Lawrence-Kennedy, much care was necessary in order to secure clean milk. With the improved forms of this milker, however, as shown by repeated careful tests announced in Bulletin 317 of this Station, there need be no difficulty in keeping the counts of bacteria as low as in ordinary hand milking.

The precautions necessary in securing clean milk with the improved form of this milker are few:

(1) Those parts of the machine through which the milk passes must be rinsed thoroughly after each milking, using in succession cold water, hot sal-soda solution or similar cleansing material, and hot water; and the teat cups and rubber tubes must be kept, between milkings, in a strong brine solution (10 per cent.) or similar germ destroyer. Once a week all parts of the machine touching the milk should be thoroughly washed and steamed.

(2) The ample, but few and simple, air-filters must be kept well filled with fresh, dry cotton to prevent entrance into the machine of germ-laden dust.

(3) Dropping teat-cups on the floor or any similar carelessness in handling the machine must be avoided, since such accidents produce marked increases in the bacterial counts of the milk.

In Station work it has been necessary to weigh and record each cow's milk separately; so that it has been inadvisable for one man to handle more than two machines, each milking two cows, and the operations have undoubtedly been done a little more carefully and a little slower than would be necessary in a commercial dairy. The data given for labor are, therefore, very conservative. They are based on accurate records of the time consumed by each step of the afternoon milking on 144 days in 1911; and on records of the time required each day for a month in washing and otherwise completing the cleaning of the machines, this last work being done in the dairy building, not at the barn.



FIG. 33.—POURING MILK FROM PARTITION MILKER PAIL.

Based on the use by one man of two machines in milking 15 cows, the time consumed each day would be as follows:

Preparing machines night and morning.....	6.72 minutes
Milking 30 cows (15 night and morning).....	88.20 minutes
Rinsing machines at barn night and morning.....	15.36 minutes
Cleaning teat-cups and tubs (done weekly).....	2.61 minutes
Washing remaining parts of machines.....	8.13 minutes
Total time required to milk 30 cows.....	121.02 minutes
Average time required to milk one cow.....	4.034 minutes

Under commercial conditions this time could be decidedly lessened; and the advantage would increase as the number of cows milked increased. Fifteen is probably as small a number as will be found profitable in connection with present machine milking; since with this number of cows approximately one-third of the time is spent in operations other than the actual milking. As the number of cows increased this extra consumption of time would become relatively less and the average time required for each cow would decrease. It is possible, also, where detailed records are not kept, that one man could handle more than two machines and thereby reduce the labor cost.

As Station figures show that it takes seven minutes for a hand milker to milk a cow, record the weight and pour the milk on the cooler, it is evident that the machines do economize labor. As to whether, or under what conditions, their installation would be financially profitable, data is lacking. Owing to rapid and repeated changes and improvements in the milkers used in these tests and the substitution of new pails and parts, it has been impossible to measure the deterioration of the machines or to get any very definite idea as to the cost of maintenance. Until this data can be secured, possibly not for a long period of time, each herd

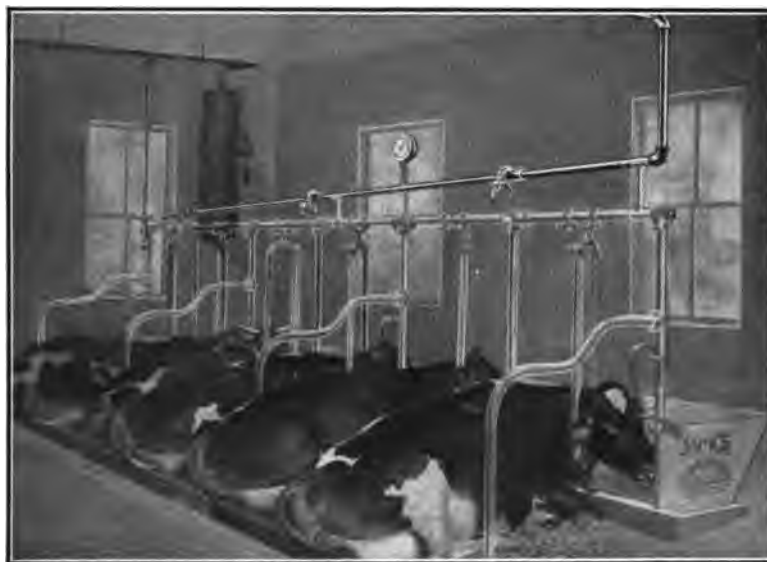


FIG. 34.—SHOWING PIPING IN STABLE.

owner will have to decide for himself whether the saving in labor indicated above will justify him in installing machine milkers.

The Station experience proves that such machines, at least the one used by us, can be readily handled by the better grade of farm laborers, that they can easily be made to produce milk with very satisfactory bacterial counts, that they do not injuriously affect the flow of milk and that they will lessen the amount of human effort necessary to milk cows.

Since the data in this bulletin were collected, the use of the milking machine has been continued in the Station herd. For

various causes some of the older cows have been disposed of and heifers put in their place. The production of the individual animals has continued to be fully up to the average of former years. The results indicate that the milking machine is particularly well adapted to heifers. It is easier breaking them to milk with the machine than by hand.

Owing to the interest on the investment in machinery and to the time which is necessarily lost in preparing and later cleaning the milking machine, it is probably not profitable to use machines in dairies of less than 15 cows.

SANITARY ECONOMICAL DAIRY BARNs.

H. E. COOK and ROBERT H. SMITH

Dean of State School of Agriculture, St. Lawrence University, and
Instructor in Mechanics and Farm Engineering



Keeping cows in a stable under uniform environment during the fall, winter and spring months is deplating the old open shed and the various types of stables which were in the same general class.

Inventive genius, coupled with business ability, are supplying stable equipment which simplifies construction but does not, of course, lessen expense. Professional architecture has not yet come to the farm.

Architects have not given attention to rural barns for the very plausible reason that we could not afford to pay the cost. As we gradually accumulate money in the country and can afford to employ professionals, we shall do so and have at hand a studied form and size that will meet our wants. The farmer and his "carpenter" are the architects and builders, and the plan is worked out very largely as the work progresses. I have always worked on this plan and it is hard to become accustomed to carefully worked out blue-prints and specifications such as we are obliged to accept under state management.

MATERIALS

Comparative to former times barn building is expensive, and I am unable to see any relief. Cement should take the place of wood, but this sometimes increases the expense over lumber prices. Economy and satisfaction will come from the use of cement when standard sizes are accepted, when professional builders do the work, and portable steel "forms" take the place of wood. As much lumber is now required to build the forms as is required to build the same wall of lumber and the labor expense is about equal.

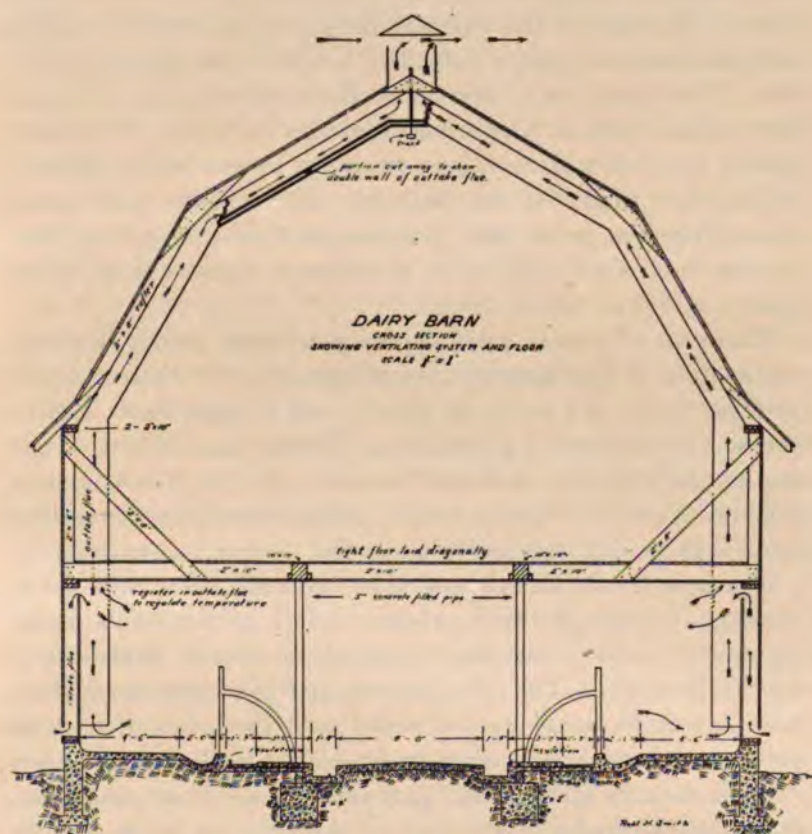


FIG. 35.—PLAN OF DAIRY BARN, SHOWING VENTILATION SYSTEM AND FLOOR.

CEMENT FOR WALKS AND FLOORS

We can use cement for the foundation walls and floors with economy. Either gravel or crushed stone with sand may be used in the proportion of one part Portland cement, three parts sand, and six parts crushed stone or coarse gravel. The gravel possibly may contain enough sand so that cement and gravel will be sufficient. The depth of the wall will depend on the soil and will, in most eastern soils, range from two to three feet below the surface. The depth may vary under the same building, but good sound subsoil should be reached whatever the depth. The thickness of the wall will vary from twelve to sixteen inches, depending on the weight of the building and contents, and should come above the grade line from one and one-half to two feet. Anchor bolts should be set in the cement about sixteen inches apart and the sill bolted down.

There may be some valid objection to plain cement for floor construction if laid directly upon the ground, but when insulated with tar paper and tar paint there is not a single fault, and no one as yet has devised a substitute. Before the concrete is laid the ground should be wet and tamped hard. A 1-3-6 mixture would be advised for the foundation, using either gravel or crushed stone with sand as previously mentioned in wall construction.

The floor should be cut loose from the wall, but it will not be necessary to block the floor unless it is in a portion of the building subject to frost; then the floor should be cut into sections, four feet by four feet. The cow platform and box stalls should have three layers of single-ply tar paper with two coats of coal tar paint, laid between the concrete foundation and the two inches of surface finish made of one part cement and three parts clean, sharp, coarse sand. Every part of the floor on which animals stand or walk should be floated with a board trowel, bringing the coarser particle of sand to the surface, making it sufficiently rough to prevent slipping. All other portions of the stable should be troweled smooth. The diagram shown on page 182 has many advantages.

INSULATION AND VENTILATION

The most satisfactory side wall construction consists of a six-inch air space, sealed inside with sound matched lumber and cov-

ered outside with novelty siding or matched lumber, filled with planer shavings or straw well pounded together. The shavings are preferable. My experience with stuffed walls dates back twenty-five years and their use has always met with success. In constructing our state school buildings, when of wood, I advised and urged the state architect to adopt this plan of wall construction. The results here have also been satisfactory and have justified the plan, and it is so recognized by the state architect today. The method provides innumerable dead air spaces which cannot in any other way be as cheaply provided. A dead air space with lumber is impossible unless two inner walls are built, which is too expensive. The stuffed wall need only be built where animals are to be kept and to the height of the stable ceiling. It is impossible to provide a system of ventilation for horses and cows rapid enough to keep the wall dry, if the wall is cold. During periods of low temperature the inner wall will be wet from the condensation of vapor exhaled by the animals; if the wall is warm it will remain dry.

Two systems of ventilation are in use — the King or fireplace flues and the muslin curtain. Neither can wholly take the place of the other. The flue system is based upon a scientific knowledge of air current control. The muslin curtains are not based upon such knowledge, but have an advantage because they permit ingress and egress of air through very small openings, eliminating any danger to the animal from direct air current. The muslin curtain is exceedingly valuable in poorly constructed stables where air currents can not be controlled through flues, and they also serve as an important adjunct to the flues in early fall and late spring, when air movement is sluggish. The out-take flues as shown in the drawing can be located at any convenient place in the stable, but they must have a final outlet above the high point of the barn in order to get circulation. In the northern latitudes the flues must be insulated by an air chamber or stuffed walls to prevent condensation and hence a retarded circulation. They should have an area of one square foot to each five cows and each flue should have not less than two square feet of area. An opening should be left near the floor of the stable, and the ceiling opening in each case should be as large as the single area of the flues; the lower

to be used in cold weather and the upper in warmer weather. Were it not for the difficulty in controlling temperatures in the stable more impure air would be taken out near the ceiling than near the floor. While the general location of the out-take flues may vary, the location shown in the drawing will be recognized as the one generally to adopt. The intake flues should be distributed on the four sides of the stable, or as nearly so as possible, to insure fresh air at all points. This is important and must not be neglected. The area of the intake flues of the stable should equal in area the out-take flues. The air is taken into the flue near the floor and enters the room near the ceiling. These flues may be built into the wall and of metal if desired, while the out-take flues should in no case in northern sections be built of metal. The more nearly the stable is like a box and free from openings in construction, the more satisfactory will be the flue ventilation system.

INSIDE FINISH

If the builder desires he can finish the inside wall with metal lath and cement mortar, introducing about 10 per cent. of quicklime. These walls will occasionally crack, but if painted or treated from time to time with a cement wash, or if whitewashed regularly, no trouble will follow.

A smooth ceiling overhead is preferable. It is almost impossible to have real sanitation when the upper joists are exposed. The clean stable is the smooth surface one, with every post or obstruction removed.

INTERIOR CONSTRUCTION

From a sanitary standpoint cows should stand heads out. The walls can be much more easily kept clean, and while the feeding is not as convenient, stable cleaning is more so. Post support in the stable works out better with heads together because they can be located in the stanchion line and be spaced width way of the barn. Four- to six-inch iron pipe is best with screw cap at each end. After using both methods and realizing their disadvantages, I am in favor of the heads-to-the-wall system.

At present, swing stanchions are the most convenient and sanitary for securing the cows. There are several concerns now manufacturing stable equipment, such as The James, Star, Loudon,

etc., that are preferable to homemade devices. They are strictly sanitary, and are sold in sufficient quantity to enable the manufacturers to keep up to date in developing improvements. These stanchions are now made so that they may be readily adjusted to the length of the animal and hold her hind feet near the gutter line.

The depressed manger seems to be more satisfactory than any other form. It does not serve as a retainer for feed, but this is not necessary. Feed can be retained only in a manger at least two feet high and three feet, six inches wide, and this form has such evident disadvantages from a sanitary point of view that it is



FIG. 36.—SANITARY DAIRY BARN, LINCOLN AGRICULTURAL SCHOOL, LINCOLNDALE, WESTCHESTER CO., N. Y.

becoming less and less popular. With the plain floor and the depressed manger, one sweeping of either grain or coarse feed will prevent the animals from slipping when reaching for their feed. This manger can also be easily cleaned each time before watering, a very important matter when cows are watered in the manger.

Every system of indoor watering has some objection. In the open manger the animals all drink from a common pool; the bucket system easily becomes contaminated and is unsanitary; the movable trough has some advantage, but requires labor. All things considered, watering in pails is probably the most sanitary, and

will reveal as no other way can the actual condition of the animal; but the labor involved has made it impossible.

The cow platform should be constructed with the rear thirty-six inches raised one inch and to slope toward the gutter. The cows will then stand on a level platform and the floor under the hind parts have sufficient incline to give good drainage. The stanchions should be set in cement bed pieces when the floor is built. The sides of the gutter should be built first and the bottom put in afterward, which will prevent leaking.

Outlet drainage with both "bell" and "S" traps should be provided and the whole floor inclined towards these outlets, both from gutter and manger. The experience of the writer in putting in drains after the floor has been laid warrants urging their installation in every new building. Finish next to the side wall with a cove to prevent accumulation of filth. In other words, build for permanency and sanitation. The day of dirty milk has passed, and while much depends on the individual and his own sense of sanitation, he will be greatly aided by mechanical devices and construction which will prevent the growth of bacteria. The ceiling should ordinarily be about eight to nine feet above the finish floor.

Mullion windows with the lower sash on weights is probably the best form. Not less than eight to ten square feet of window space should be given each cow, with especial reference to a southeastern and southwestern exposure. When necessary to prevent accumulation of moisture storm windows can be installed.

FORM OF BUILDING

The general construction of the building may vary. However, to meet present waste, a self-supporting hip roof with stable in the basement about thirty-six feet wide and long enough to accommodate the stock desired, with an "L" for horses, carriages, etc., seems to be the best form, costing from one hundred to two hundred dollars per cow, depending largely upon the interior finish. The modern hay track permits unloading at any point, either from a floor or from the end of the building. Manure may be taken out by wagon or preferably by a trolley system.

THE CHEESE INDUSTRY OF THE STATE OF NEW YORK

GEORGE A. SMITH

Dairy Expert, New York Agricultural Experiment Station, Geneva

The earliest reports of cheese-making in this state date back to 1785, when several persons emigrating from New England settled in what is now the town of Fairfield, Herkimer county. Some of these families, coming from Cheshire, Massachusetts, brought with them a practical knowledge of the method by which cheese was made in a small way. There are also reports of some English families settling along the Susquehanna in Otsego county and making English dairy cheese of a type of which many have been made since in that section. In those early days cheese was made only in the hot weather when it was not easy to make butter. The dairies were small and buttermaking was the principal method of disposing of the milk. The few small cheeses manufactured were consumed at home or peddled among the country merchants.

Commercial cheese making, it is claimed, began about 1804 in the town of Norway, where Colonel Jared Thayer kept a dairy of twenty cows and made cheese the whole season. His neighbors said he was crazy, that it would be impossible to dispose of so much cheese in the market afforded by that backwoods country, but he did find a market. It was from such a small beginning that the great dairy business of the state has grown. The work was done by women, in nearly all cases, and the process was very simple. The methods were crude, and the cheeses were made in a more or less haphazard manner. The milk of the evening was placed in a cheese tub in the dairy room and cooled to a temperature that would prevent souring. In most cases the cream that had raised to the surface of the night's milk was removed in the morning. This was considered an act of economy, for they believed that in the process of manufacture it would all pass off in the whey and be lost. The morning's milk was then mixed with that of the evening and warmed to the setting temperature by placing a portion in a tin pail, and suspending it in a kettle of

hot water. When hot it was emptied into a tub of cold milk. By transferring back and forth, the setting temperature of about 85 degrees F. was reached. It was the exception for anyone to have a thermometer. Consequently cheese makers were obliged to depend upon the sense of feeling to determine temperature. The women became expert at this by putting a finger in the tub of milk. This method of guessing at the temperature was followed by some of the most successful makers as late as 1842, as shown by the description of the method of making cheese which took the prize at the state fair that year.

One of the serious troubles of the early cheese makers was the difficulty in caring for the rennets to keep them near a uniform



FIG. 37.— AGRICULTURAL FURNACE AND CAULDRON FOR CHEESE MAKING.

strength. Within my remembrance some of the subjects for discussion were, the kind of rennets to use, how to clean and dry them, and how long they should be kept before using. Also, how to feed the calf and when it should be slaughtered. After the addition of the rennet and as soon as the coagulated milk became firm enough, it was broken up into as small pieces as could be conveniently made, a wooden knife being used for this purpose. After standing ten minutes it was stirred by hand, breaking the pieces finer, and the temperature was gradually brought to 98 degrees, aiming to get as near blood heat as could be judged by the sense of feeling. It was kept at this temperature until the moisture

was out of the curd and it would squeak between the teeth. The whey was then drawn off and the curd stored until dry, salted and put to press. Made as the cheese was, from the milk of one dairy with all of the surroundings cleanly, the quality was very good, but the texture was rather open.

The method of caring for the cheese and marketing was entirely different from that practiced at the present time. All of the cheese made during the entire season was held until fall and marketed at one time. When the amount manufactured reached sufficient proportions to be shipped away, the cheeses were packed in casks, four to six in a package, one on top of the other, so that they could be conveniently handled without injury. The first evidence of cheeses being boxed singly appears in the market reports in the fall of 1841, and the first record of outside buying was in the early twenties, when buyers from Massachusetts came through in the fall buying the cheese, paying from four to six cents a pound. In 1826, Harry Burrell, of Salisbury, began the purchasing of cheese and later became one of the chief dealers in dairy goods in New York state. He was the first to open a cheese trade with England, his first venture being about 1830, when he shipped 10,000 pounds. About this time the production of cheese had become sufficiently large to attract the attention of dealers. As soon as the idea gained a foothold in the minds of traders that there was money to be made in handling this product of the dairy, they began to make a regular business of buying cheese. Early in the fall they carefully canvassed the entire region where the industry was carried on, contracting for the whole season's make of as many dairies as they could buy at figures which promised them a profit. Stock that was sent to tide water went by canal, and a moderate proportion of the cheese contracted for by buyers during the twenty years between 1820 and 1840 was sold to exporters.

As the demand for cheese increased, particularly in England, it became necessary to change the methods employed in making. The farm dairy cheese was a rather open-made, sweet-curd product. If not, it was due more to an accident than to any intention to improve the quality of the cheese. One of the early complaints

from England was that New York State cheeses were too small and uneven in size. This could not well be avoided with the small dairies kept by most farmers. To obviate this, Jesse Williams, of Oneida county, combined the milk from the farms of his sons with his own which enabled him to make larger cheeses and have them more uniform. This was during the year 1851. At first this plan did not spread very rapidly, but as its advantages were realized it came to be the general plan for manufacturing.

As the demand from England increased, the request for a more solid body accompanied the orders. After a short time the request came in the form of a demand. It had been discovered that when a little acid was developed in the whey before removing it, the curd would be more solid, and when the cheese was cured it would draw a more satisfactory plug on the trier than when less acid or none was developed. When sufficient acid was developed, which experience had shown would insure a fairly close texture, the whey was drawn and the curd dipped into a curd sink and stirred until considered sufficiently dry to add salt and be put to press. The demand from England was of such a nature that it was necessary to grant it if we were to hold that trade, regardless of the tastes of American cheese consumers. The result was a decrease of consumption of cheese on this side of the Atlantic. Makers began to realize about 1868 that our method of making a stirred curd by developing lactic acid in the whey did not produce an ideal cheese for export. While the flavor was fine and the texture and body fairly good, there remained in the cheese open places, called mechanical holes, which were objectionable, owing to the fact that they are liable to contain free moisture, which will cause mold to develop and turn profit into loss. For this reason the stirred curd process had to be abandoned, and the cheddar process adopted in order to produce a quality equal to that possessed by the English cheddar system.

To illustrate the growth of the industry, some statistics from the Treasury Department are given below, with a record of exports and number of cows as reported in the census of different years.

In the New York Agricultural Society Report for 1851 a committee reports that it would seem to be a matter of general interest, especially to the producers of cheese, to know the rise and progress of the industry. In furtherance of this plan a circular was prepared and sent to the collectors on the coast. Reports were received only from Boston and Philadelphia, but later one came from the Treasury Department which covered the ground quite fully. The exports were first made in 1789, but were not large enough to command the attention of Congress till 1820, and from that period until 1840 the amount was so small that no

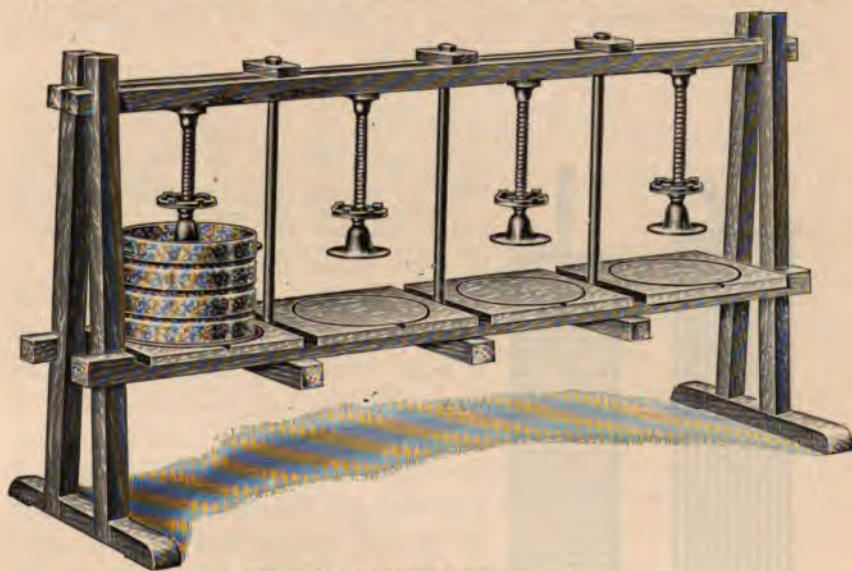


FIG. 38.— UPRIGHT CHEESE PRESS.

records are available as to the amount. The census of 1830 was so incomplete and unsatisfactory that no attempt was made to secure industrial statistics. The prosperity of a business can be judged to quite an extent by the statistics showing the amount of business done and whether it was on the increase. In 1840 the value of dairy products of all kinds was \$33,787,008. New York State produced \$10,496,021 of the amount, or nearly one-third. The progress of the dairy industry from that time forward is truly astonishing. The exports of cheese in 1840 are given as 723,217 pounds. The state census of 1845 gives the number of

cows as 999,490 and the exports of cheese 7,941,187 pounds. The report of 1850 does not show quite as many cows, but 13,020,817 pounds of cheese were exported. In 1860 the number of cows was 1,123,634 and the exports of cheese 15,000,000 pounds with a total production in New York of 48,548,288 pounds. In 1865 the number of cows is given as 1,149,392, and the amount of cheese 72,195,337 pounds. This wonderful increase was in part due to the rapid extension of the factory system, and to the fact that the farmers in the cheese sections utilized the milk for the whole season for cheese making instead of making butter, until cows were turned to grass in the spring, and from about the middle of September through the fall.

During the period from 1851 when Jesse Williams first proposed the cooperative factory system, up to 1862, very few factories were started. It took all of this time for the dairymen to make up their minds whether the factory system was to their advantage and was going to prove a success. In our own case, at my home, we did not have faith to try it until 1864, and then only because the buyer handling our cheese wanted larger cheeses than we could make with our single dairy. The demand for the larger cheeses did not last very long, but the factory system had come to stay. In 1870, 1,350,661 cows were reported, and the amount of cheese was 78,000,000 pounds in factories and 22,000,000 pounds in dairies. All the rest of the United States made only 62,000,000 pounds. This remarkable increase was probably stimulated by the enormous price the farmers received for cheese during these years on account of the premium on gold. The high mark in the production of cheese was reached in 1880 when the census returns showed that the factories produced 129,163,714 pounds and the dairies 8,362,590 pounds. That year



FIG. 39.—TWO STYLES OF CURD KNIVES.

1,439,931 cows were reported, and the exports were 148,000,000 pounds of cheese. In other words, New York made $56\frac{1}{2}$ per cent. of all the cheese produced in the United States in 1880. Since that time there has been a gradual decrease in the amount of cheese manufactured in New York State. One of the factors responsible for this is the rapidly increasing consumption of milk in the cities and towns, which leaves less to be manufactured. But that was not the only reason. The desire of some persons to make more money than was possible when doing a legitimate business was an equally pronounced factor. They remembered that in the early history of the industry it was the practice to skim some of the fat from the night's milk and make butter. This practice was revived, and in place of a little they took most of it and made hard skims, which markedly reduced the consumption. Another factor was the filled cheese, in which they used the skim-milk reinforced by a foreign fat, which not only injured the export trade but the home trade as well.

In 1865 what was known as the American Dairymen's Association was organized at Utica by some of the practical men interested in the improvement of dairy business. The discussions and addresses at the annual meetings of this association were of great benefit. The idea in holding these meetings was that through the addresses and discussions and mutual exchange of experiences, the makers as a class might be instructed in order that a more uniform product might be produced; and the sentiment always expressed was that success could only come through making an honest product. As the making of skim and filled cheese increased, everything possible was done to discourage such practices but it was out of the power of this association to stop it.

The agitation brought about the enactment of a law establishing a Dairy Commission and making illegal the manufacture or sale of filled cheese. A law was also passed making a New York State full cream cheese brand. In 1888, a law was passed to have cheese and butter instructors appointed. The best men in the business realized that unless a change could be effected the wonderful business that had been built up would be lost.

At the first meeting of the New York State Dairymen's Association, which was established in 1877, Professor L. B. Arnold, of

Rochester, who had been very prominent in trying to improve conditions in the dairy industry, made the statement that the reason New York cheese was losing in reputation was because makers were developing too much lactic acid in the curd.

When Robert McAdam came to Herkimer county, N. Y., in 1867, and introduced the use of the curd mill and what was termed the "English cheddar process," it was adopted by a large number of cheese makers because of the help it gave them in handling gassy curds. In doing this they still retained the

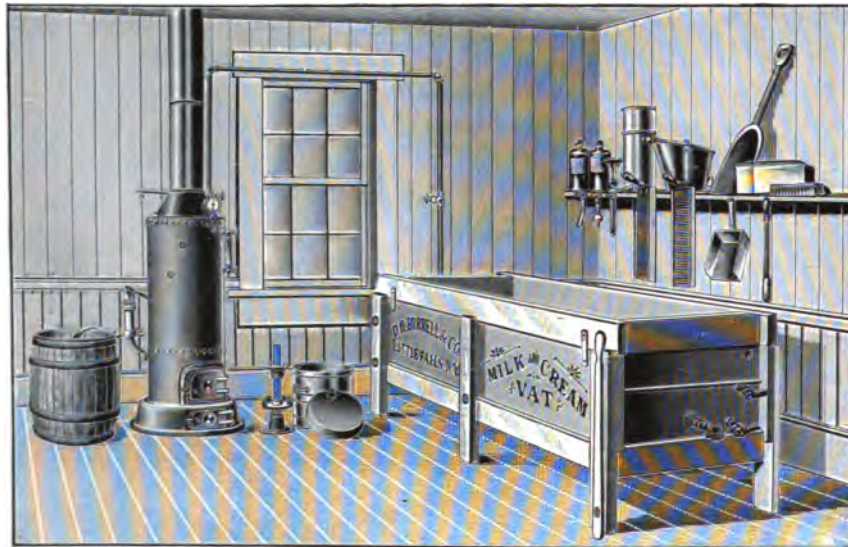


FIG. 40.—DAIRY CHEESE MAKING OUTFIT.

stirred curd plan of developing considerable acid in the whey before drawing it off.

Professor Arnold's idea was to make a good, dry, well-fined curd, the same as had been practiced, and then take the whey off before the acid had developed to any great extent, and develop the curd sweet, as he termed it. New York cheese makers as a class did not accept the plan, believing that it would be impossible for them to handle the tainted milk as successfully in that way as in the way they had been doing. To illustrate what the result was, a little Canadian dairy history is appropriate. In all of the early his-

tory of the cheese industry Canada had not been important. While the early settlers made some cheese, it was not a commercial factor. The dairies were small, and only enough was made to supply the home demand. In 1863, Mr. Harvey Farrington, of Herkimer county, went to Canada, and was so impressed with the opportunity of developing the cheese-factory system that he came home, sold out and went back to establish the first cheese factory in the town of Norwich, Ontario. It was accepted at once by Canadian farmers and factory cheese making increased rapidly. In 1866 a small quantity of cheese was exported, and from that time on New York had a rival in the English trade. The men who were



FIG. 41.—SELF-HEATING CURD VAT.

working to build up the Canadian dairy business were wise in that they secured the passage of laws forbidding the making of filled cheese, and no skim-cheese could be put on the market unless branded as skimmed, both on the cheese and box. When Professor Arnold went over there and talked his so-called sweet-curd theory, makers said it was worth a trial. The result was that, with some modifications, it was a success, and the Canadians had a system that gave better results than the plan followed by most New York makers. The result was a rapid replacement in English markets of New York cheese by the Canadian product. In 1890 we exported 95,376,053 pounds, and Canada 94,260,187

pounds; the next year they exported 106,202,140 pounds, while we sent 82,133,876 pounds; and since that time Canada has dominated the English market, while New York has been a small factor. In the past few years, since so much milk has been diverted to the city trade, the home demand has furnished a market for all of the cheese manufactured at a better price than the export trade would pay, so that we have not been dependent on that trade.

Before the improvement in trade conditions came in the early nineties, while we were still dependent upon the export trade to



FIG. 42.—PARAFFINING VAT.

take care of the surplus, the success with which Canada was meeting convinced New York dairymen that they must change their methods or the business would cease to be a paying proposition owing to the low prices received. The full-milk brand for the cheese was one of the factors utilized to convince the consumers that they would receive honest goods.

Canada and Wisconsin have instituted a system of instruction, in which competent men were sent to those factories which were having trouble to maintain the quality of their product. The first

instructors were sent to Canada to spend some time in learning all of the points possible on the Canadian method. They utilized the knowledge they obtained in helping the cheese makers to improve the quality of New York State product. Some accepted it, while others were inclined to doubt the wisdom of the methods recommended. In order to meet these criticisms and have all of the different theories carefully tested out by following all of the different methods of work by chemical analyses, the instructors in cheese making of the Department of Agriculture arranged with the chemical department of the New York Agricultural Experiment Station in the early nineties for a series of experiments to cover as nearly as possible all the different phases of the question. The Department of Agriculture was to arrange for having the practical work done by men thoroughly competent to meet the different situations as they came up.

The chemists at the Experiment Station had everything arranged to cover the different operations completely. The first question taken up was the influence on the yield of cheese of different percentages of fat in the milk. The results of that work, with which, as it progressed, nearly every phase of cheese making and ripening was combined, demonstrated conclusively that normal milk containing a given percentage of fat would, if properly handled, produce a definite amount of cheese. The following table is based on a uniform percentage of 37 per cent. of water in the cheese:

Per cent. of fat	Per cent. of casein	Yield of cheese
3.00.....	2.10.....	8.30
3.25.....	2.20.....	8.88
3.50.....	2.30.....	9.45
3.75.....	2.40.....	10.03
4.00.....	2.50.....	10.60
4.25.....	2.60.....	11.17
4.50.....	2.70.....	11.74
4.75.....	2.80.....	12.31
5.00.....	2.90.....	12.90

These figures are based not only on work in this state, but also in Vermont and Wisconsin, along the same line.

During the progress of the work the question of temperature at which cheese should be ripened was brought up. It had always been thought necessary to keep cheese warm in order to have it ripen properly. To determine whether this was true the New York Experiment Station at Geneva, in a new dairy building which was being built, had six small rooms so constructed that a uniform temperature could be maintained. In studying the question it was necessary to plan the work so that the difference in temperature in the separate curing rooms should be the only condition not alike in the manufacture and curing of the cheese manufactured. The making in all cases was as nearly uniform as possible, the cheese made in one vat being distributed in the different rooms. The following data is from Bulletin No. 184 of the New York Agricultural Experimental Station:

"The refrigeration worked in a very satisfactory manner. In each room cloth is suspended in such a way as to be continuously wet; so that the percentage of saturation may be kept as nearly uniform as possible in all the rooms.

"*Cheese made during 1899.*—In 1899 four rooms were used, in which the temperature was kept at 70, 65, 60 and 55 degrees respectively. The time of making, date of scoring and the marks given each cheese are shown in Table I, the scale of judging being 50 points for perfect flavor and 25 points for perfect texture. The scoring of June 20 was M. T. Morgan, one of the experts of the State Department of Agriculture, that of September 5 by judges at the State Fair; and that of October 16 by James A. Brown & Sons of Utica.

"From this table it would seem, without exception, of cheese made at the same time, those cured at the lower temperature scored higher.

"On September 20, 1899, a lot of cheese was made from milk containing 5 per cent. of fat and put in the 55 degree room. In June, 1900, one of these cheeses was sent to E. J. Burrell, Little Falls, N. Y., to test; and, on June 26, he writes: 'I have tested the cheese and can say that it is especially fine. The flavor is clean and nutty, the texture is perfect and the curd breaks down beautifully. If the factory men of the country were to manufacture cheese of this description for home-trade purposes, the sale would

be largely increased for home consumption and we, practically, would be entirely independent of England.'

"*Cheese made during 1900.*—During the season of 1900 considerable more cheese was made, with, practically, the same results as to flavor and texture as in 1899. In August Mr. D. W. Whitmore, 89 Warren street, New York, kindly agreed to score for us several lots of cheese which were to be sent at dates about a month apart through the fall and winter. The cheeses sent upon any date were from the same lot of milk, made at the same time and handled as nearly as possible except that each was cured at a different temperature. Mr. Whitmore knew these cheeses only by number, not by the temperature of curing; so was entirely unbiased in his scoring. The comparison of these cheeses is shown by Table II.

TABLE II.—SCORING OF CHEESES CURED AT DIFFERENT TEMPERATURES, 1900

Cheese		No. 1, 80°		No. 2, 75°		No. 3, 70°		No. 4, 65°		No. 5, 60°		No. 6, 55°	
Made	Scored	F.	T.	F.	T.	F.	T.	F.	T.	F.	T.	F.	T.
July 27....	Sept. 1	42	21	43	23	45	23	47	24	48	25	45	25
July 30....	Oct. 1	42	21	43	22	43	22	48	24	49	24	49	24
Aug. 1.....	Nov. 1	39	20	41	20	43	22	44	24	47	24	47	24
Aug. 3.....	Dec. 1	42	21	44	22	44	22	46	24	49	25	49	25
Aug. 8.....	Dec. 31	38	20	39	20	42	21	44	22	48	24	50	25

"Taking the average scores of the cheeses as given in this table, those cured at and below 60 degrees show a commercial scoring 5.1 points better in flavor and 2.7 points better in texture than those cured at 65 degrees and above."

Later, in order to verify the previous work, the United States Department of Agriculture, in connection with the Experiment Stations at Geneva, N. Y., and Madison, Wisconsin, carried on quite extended experiments along the same lines. The New York cheeses came from the cheese sections of New York, Pennsylvania and Ohio, and were stored with the Merchants Refrigerating Co. of New York, N. Y., where rooms were provided in which the

temperature could be controlled and kept at 40, 50 and 60 degrees F. These cheeses were scored by New York City experts in October, December, February, April and June. It would take too much space to give full details of this work, but it fully confirmed the result of the previous work, and may be summarized as follows:

The loss of moisture is less at low temperature and therefore there is more cheese to sell. The commercial quality of cheese cured at low temperature is better, and this results in giving the cheese a higher market value. Cheese can be held a long time at

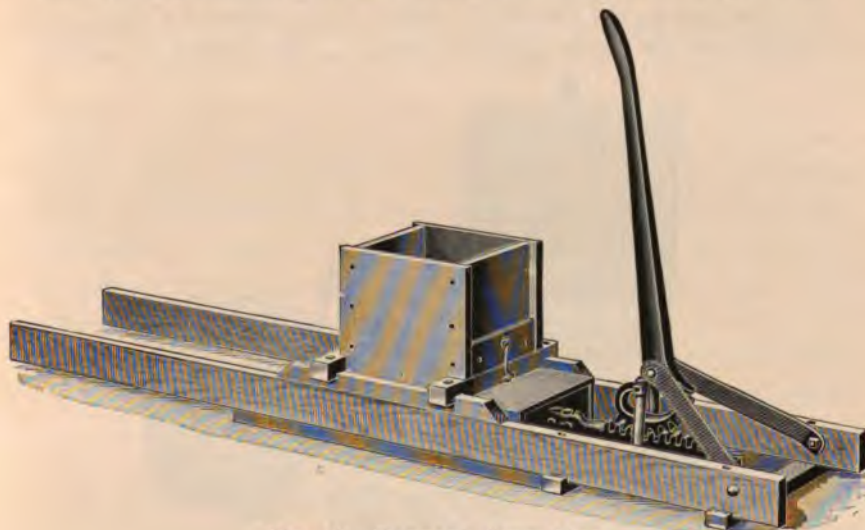


FIG. 43.—BARNARD CURD MILL.

low temperature without impairing the quality. By utilizing the combination of paraffining cheese and curing it at low temperature, the greatest economy can be effected.

A full report of this work can be obtained in Bulletin No. 234 of the New York Agricultural Experiment Station. As a result of all of the knowledge gained, a plan of manufacture was developed which can be considered standard.

THE CHEDDAR PROCESS OF CHEESE MAKING

The foundation of good dairy products is a healthy cow in sanitary surroundings, well fed and cared for, yielding her milk to a

clean milker into clean utensils. If every patron of a cheese factory could be brought to understand that the making of good dairy products depends on the cleanliness of the individual farmer, it would simplify the problem confronting the makers. No man is expert enough to make a first-class product out of dirty, bad-flavored milk, or that in which the germs of putrefaction have been allowed to develop. The trouble is that the farmers do not realize the effect produced. If the milk goes to the condensery the producers have to live up to certain very strict rules if their milk is to be received. The results of bad milk show quicker at the condensery, but the final results in the cheese are nearly as expensive to the cheese patrons, because in the cooperative factory



FIG. 44.—MARSHALL RENNET TEST.

the patron has to suffer in the lessened yield and cut in price for the poor cheese which resulted from the poor milk. The farmer says he has not the time and cannot afford to give the extra care to his milk. The fact is that he cannot afford not to do it. In a series of experiments covering some five years, on the effect upon the quality of the milk of certain barn operations, it was shown that a few things will insure clean, good keeping milk, the principal of which are—a clean cow, a careful milker, a small-topped milk pail and cooling the milk at once to 60 degrees F. or below. This is not expensive, and it does not require any great amount of additional time. When it means the difference between a good and a bad product, the farmer cannot afford to neglect it.

Milk is at its best for cheese making when it is as near perfectly sweet as it is possible to have it and free from bad odors when it reaches the factory. It should be sweet enough to allow at least three hours between the time the rennet is added and the curd has reached that condition when it is proper to remove the whey. If the acidity is found to be too low after the temperature is raised to the setting point, it is generally necessary to allow the lactic acid to develop slightly before adding the rennet in order to insure good results. This is called ripening the milk for cheese making. It is accomplished either by allowing the milk to stand at a temperature of 84 to 86 degrees F. until the acid is sufficiently developed, as determined by the rennet test, or by the addition of a quantity of sour milk to promote the growth of the lactic acid-forming bacteria. Possibly no other practice in the whole art of cheese making has given rise to so much discussion and difference of opinion in the past, but it is now generally conceded that the principle is correct. We have come to recognize the value of starters in assisting us to develop proper fermentations, to aid us in checking the growth of gas producers, and as a factor in expelling moisture. Mistakes in the use of starters are sometimes made by using those not clean and sound in flavor, or by putting in more than is proper. These are serious mistakes, and should be carefully guarded against. There are two ways of preparing a sour milk starter, either by purchasing a so-called pure culture from the dairy supply house or preparing it from good clean milk. The main advantage of the culture system lies in the uniformity of the product.

In preparing a culture, take three or four pounds of pasteurized milk cooled to 75 degrees F. and inoculate with the contents of the package containing the lactic ferment. This is allowed to stand in a closed jar until it has curdled, when it is added to the right amount of pasteurized milk to provide the necessary amount of starter for the next day's cheese making, keeping out a small amount of the mother starter to carry along from day to day. The greatest care must be taken to sterilize all vessels and everything coming in contact with the starter in order to prevent any putrefactive ferments getting the ascendancy.

Nothing has helped more to systematize the process of cheese making than the rennet test and the acidimeter. Either one is an accurate guide as to the condition of the milk. In using the acidimeter a standard alkaline solution is provided and kept in a well stoppered bottle. A burette to measure at least 50 cubic centimeters, a white cup, a 10 cubic centimeter pipette, a bottle of phenolphthalein indicator and a glass stirring rod complete the outfit. Ten cubic centimeters of milk or whey to be tested is



FIG. 45.—MARSHALL
ACID TEST OR
ACIDIMETER.

measured into the cup and a few drops of the indicator added. The alkaline solution is now allowed to drop slowly into the milk which is stirred constantly. The phenolphthalein gives no color reaction in an acid medium, but as soon as enough of the alkaline solution has been added to the milk to neutralize the acid a pink tinge appears. The number of cubic centimeters of the alkaline solution used to produce the pink color indicates the percentage of acidity, each cubic centimeter representing one per cent. of acid. Milk will show on the average .19 to .21 per cent. of acidity when ready for the addition of the rennet. The whey immediately after cutting will show about .05 per cent. less than shown in the milk. The whey should be removed when its acidity is about .01 per cent. less than the milk at the time of adding the rennet.

Having our milk in the proper condition as to ripeness, we are ready to set it. It should be set at a temperature of 84 to 86 degrees F. according to its condition. This must be left to the judgment of the cheese maker, but there are no conditions which would make it better to add the rennet below or above these temperatures.

All things considered it is wise to use the prepared extracts, as the strength and conditions can be depended on at all seasons of the year if brands of well-known strength and purity are purchased from reliable firms. The color, if any is used, should be added before the rennet. It should be diluted with water and stirred in thoroughly. Dilute the rennet with cold water, using at least one pint for each ounce of rennet. No more rennet need be used than is necessary to cause coagulation in properly ripened

milk at a temperature between 84 and 86 degrees F. within twelve to fifteen minutes, and be ready to cut in twenty-five to thirty minutes from time of setting. As a rule from two to two and one-half ounces of any standard brand of extract to 1,000 pounds of milk is sufficient.

It is important that the rennet be thoroughly incorporated with the milk by stirring the whole mass at least five minutes, and then gently agitating the surface with the bottom of the dipper so that the cream will not rise to the surface until the fat globules are caught and firmly held by coagulation. This stage of the process can easily be determined by watching the wave of milk.

If signs of coagulation are present the milk will have the appearance of very thin milk gravy. As the adding of the rennet is the first steps towards cheese making after the milk has been prepared, it is important that it be thoroughly understood and carefully executed.

The next important step in the process of cheese making is to cut the curd, in order that the surplus moisture or whey may be removed. There are three important agents used in expelling moisture from the curd; namely, rennet, heat and lactic acid fermentation. There are different ways of determining when the curd is ready to cut. A very good way is to press the back of the hand gently on the top of the curd, and if it is elastic enough to cleave away from the side of the vat, leaving no curd sticking to the tin, the cutting should begin at once. Another rule is, two and one-half times the period from the time of adding rennet till the first thickening appears gives the time for cutting. Great care must be taken at this stage not to allow the curd to become hard enough to resist cutting to such an extent that it is displaced by the curd knife. This will result in the pieces of curd not being uniform, and the rate at which the subsequent changes take place depends very much on the size of the particles into which the curd is cut. The smaller the pieces the quicker the whey is ex-

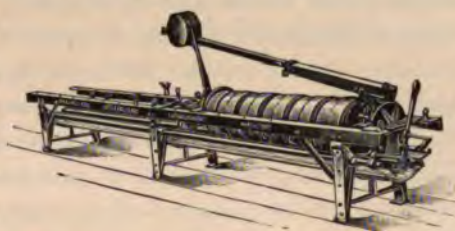


FIG. 46.—SMALL CHEESE PRESS AND BLOCK.

pelled. For this reason it is important that it be cut into pieces of uniform size. If they are not uniform, the result at the end of the firming period is that the pieces of curd of different sizes are at different stages of development; the finer pieces will be firm and elastic while the larger ones are still full of whey. The only way to remedy this condition is hand stirring by which the smaller pieces will be made still drier and the coating or film surrounding the larger pieces will be broken, allowing the whey to escape and carry some of the solids with it, the greater part of which is fat. This means a loss in yield. Different makers do not agree as to the method of cutting, some claiming that the horizontal knife should be used first, others that the perpendicular should be used first. This, however, can be left to the discretion of the operator. If other things are equally well done no marked difference can come from either practice, but whichever plan is followed the cutting should be completed as soon as possible to avoid having the curd harden so that it would push before the knife and produce pieces of uneven size. The distance between the blades of the perpendicular knife should not exceed three-eighths of an inch and that of the horizontal knife one-half inch.

As soon as the curd has been cut, a coating or film begins to form over the cut surface. Soon after cutting, the existence of this film can be shown by breaking one of the curd cubes. The inner portion of the curd is observed to be softer, owing to the larger amount of whey present. It is important that this film should not thicken or harden too rapidly and thus prevent the escape of the whey in desired amount. If this uniform, careful method is followed in cutting and handling the curd, the loss of fat will be confined to what may be called a mechanical one, which is similar to the loss of sawdust when sawing a board. All fat globules which come in contact with the edges of the knives as they pass through the curd will be left between the layers of curd and will pass off in the whey. This loss is about one-tenth of one per cent., and can not, by any known process, be avoided. If a greater loss than this is suffered, it is due to the carelessness of the maker or to the bad condition of the milk, which is usually difficult to correct. The more solids the milk contains, the more necessary it is to do the work with great care. However, with careful management, the

percentage of loss is no greater with rich milk than with milk that contains a less percentage of fat. As soon as the cutting of the curd is finished, a gentle manipulation and stirring of the mass should begin and be continued until the curd is sufficiently firmed so the pieces will not stick together and become lumpy.

The application of heat assists very materially in expelling the whey from the curd. It causes the kernel of curd to contract and this forces the whey out. The rapidity with which the lactic acid is being formed determines the time at which the heat should be applied. If applied too soon after the curd is freshly cut, or if the temperature is raised too quickly so that the contraction takes place rapidly, there will be an excessive loss of fat and curd particles. Heat alone does not firm the curd. It is probably due to the combined action of heat, rennet and acidity. If lumps are allowed to form at any time during this stage of the work, it requires violent stirring to separate the pieces to their former condition, and even if successful, a considerable loss of fat is incurred. There is probably no tool more convenient or better for stirring the curd than the common wooden hand hay-rake. With this the operator should have no trouble in keeping his curd in satisfactory condition with proper attention.

In order to preserve the most fat possible, the lowest temperature which will cause the complete expulsion of the surplus moisture should be used. Curd from milk rich in fat is harder to firm than curd from poor milk. Milk containing from 4 to 5 per cent. of fat will require 98 to 102 degrees F., while milk containing from 3 to 3½ per cent. will require between 94 and 96 degrees F. to accomplish the same results. The steam must be shut off soon enough so the extreme temperature will not go higher than required. The agitation must be kept up until the curd has reached such a stage of contraction that it will not pack together solidly in the bottom of the vat. After this the curd should not be left more than fifteen minutes before it should be stirred again to be sure that each kernel is kept separate. This is necessary if there is to be a uniform contraction of the curd. If the making room is not warm enough to prevent the temperature of the whey from dropping, a cover should be placed on the vat.

Three hours should elapse after adding the rennet before the

lactic acid is sufficiently developed to draw the whey. Frequently during this time the cheese maker should test the curd to be sure that the acid development is not going too fast for the firming of the curd. These two factors must harmonize if we are to obtain a fine, smooth-boring cheese. There are several indications which show when the whey should be removed from the curd. When the pieces of curd have contracted to less than one-half their original size and have a firm rubber-like or spongy feeling so that they will fall apart when pressed in the hand, is a good preliminary test. A handful of curd pressed dry in the hand and applied to the surface of a hot iron gives another reliable guide. The iron must be only hot enough to cause the cheese to adhere closely, but not to scorch it and cause it to cleave from the iron. If the acid has developed sufficiently, when the curd is drawn away from the iron, fine silky threads from one-eighth to one-fourth of an inch in length will appear; the whey should then be removed. If the acidimeter is used, squeeze the whey from a handful of curd, and if the test shows 0.18 to 0.19 per cent. of acidity, the whey should be drawn. From the start until this stage is reached there is no difference in the process between a granular or stirred curd and the cheddar process. The one requires the same careful treatment as the other.

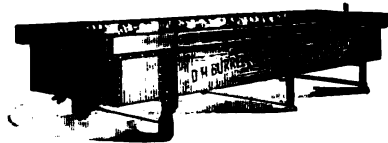


FIG. 47.—STEEL CHEESE VAT.

If one wishes at this point to make a stirred curd he should allow the curd to remain in the whey until the fine threads from one-half to one inch long will appear on the iron, before removing it. Then comes dipping, stirring the curd and salting, after which it should be piled, covered with cloth and held for three hours, occasionally stirring. This accomplishes something near the same results as the cheddar process but it is not as safe for most makers.

If the work has been well done up to this point so that the acidity and dryness of the curd correspond, it will be ready to pack along the two sides of the vat. If it is not dry enough when the whey is drawn down to the top of the curd it should be hand-stirred until the necessary dryness is secured. This can be accomplished with less loss of fat if done while the curd is covered with whey, than if

it is all allowed to drain off, leaving the warm curd so compact that there is much more bruising and consequent loss of solids. For packing, the curd should be spread evenly over about two-thirds of the upper end of the vat with a ditch cut through the center the entire length to drain the whey out of the curd as rapidly as possible, insuring a solid body and avoiding danger of an acid flavor.

As soon as it is packed solid enough to handle it should be cut crossways in strips from four to six inches wide and turned over to facilitate the rapid removal of the whey. After remaining in this position about ten minutes the strips should be set on edge. The vat should have slant enough to enable the whey to pass away without lying in pools around the curd. The turning and handling of the curd should be continued until the free moisture is nearly all out of the curd. When this condition is reached the curd can be piled by placing one piece above another and allowing them to remain a short time, when they must be pulled apart and re-piled. This does much to remove any moisture that may be left, to reduce the temperature and secure a curd that will be flaky and at the same time reach the proper maturity before milling. Frequent handling of the curd, keeping the ends of the pieces turned in to secure a uniform development and retain a uniform temperature, must be continued until finished. A solid body and a silky texture will follow if the curd is not neglected during the matting.

The cheddaring process is regarded as complete when we have the following conditions: The curd forms fine silky threads on the hot iron from an inch to one and a half inches in length. The whey running from the curd shows an acidity of .65 to .90 per cent., depending on the conditions of the curd. The curd should be smooth and velvety in appearance and feeling, and tear apart like the meat on the breast of a chicken. At this point, if the curd has been properly handled during the entire process, not a drop of whey can be pressed out of a piece of curd squeezed in the hand. The majority of cheese consumers desire a soft, mild-flavored cheese. When the demand is for a solid, good-keeping cheese it can be made on the same general plan as outlined for the cheddar process. The whey can be drawn with a little less acid development, carrying into the curd a little more moisture. The moisture can be assimilated by frequent piling and reducing the tempera-

ture during the matting process. The curd is now ready to put through the mill. The object in milling is to cut the curd into small pieces of uniform size so that it may be salted evenly. A mill that will cut the curd and do it without crushing or squeezing the fat from it should be used. After milling, stirring should begin at once in order to allow gaseous odors and undesirable flavors to pass off. At this time the flavor of curd that has been made from tainted milk can be very much improved by stirring and airing. When there was a development of gas and the curd has been held and re-packed until the gas cells are flattened, the stirring and airing will help the flavor materially.



FIG. 48.— DEMONSTRATION BY EXPERTS IN CHEESE MAKING AT WOODVILLE, JEFFERSON CO., FACTORY.

If at this point the curd feels silky and mellow it is ready to be salted, the amount of salt to be used depending on the dryness of the curd and the amount of fat in the milk. Milk containing 3.2 per cent. of fat should make 92 pounds of curd, while milk with 4.2 per cent. of fat should make 116 pounds. This shows why salting by the weight of the milk is not correct. In general terms, beginning with milk testing 3 per cent., use one and three-fourths pounds salt per 1,000 pounds of milk, increasing to two and one-half pounds when the fat in the milk reaches 4 per cent. After applying the salt, the curd should be stirred until the salt is thoroughly dissolved and absorbed and the curd has the same mellow and velvety feeling that was present before the salt was applied.

The curd is now ready for the press. When first placed in the hoops the pressure should be very gently applied, since heavy pressure at the start will force out the moisture and carry away the exposed fat globules, causing an unnecessary loss. As soon as the whey starts from the hoops stop the pressure until the whey becomes clear, after which a little more pressure can be applied and gradually increased until the full amount is reached. After pressing about one hour the curd should be firmly cemented and ready for dressing. The cheese bandage should not be allowed to lie over the top of the cheese more than an inch, and the cap cloth must cover the entire top of the cheese. Place over these the heavier cotton press cloth and return the cheese to the hoop. It is important that the hoops be evenly started when placed in the press so that the cheese will be in perfect form when placed on the shelves. The heavy pressure should now be put on and continued until the next day. The question of curing is recognized as playing a very important part in perfecting the well-made cheese. A cheese properly made from milk in perfect condition is in many cases very much injured by being placed in a hot, dry curing room. It has been shown, as explained previously, by carefully conducted experiments, that cheese placed in a room where a uniform temperature of 55 degrees F. with a proper amount of moisture, will produce a finer texture, a better flavor and much better keeping quality, with much less loss in shrinkage than under the high temperature which usually prevails in the curing room. Paraffining the cheese and putting in cold storage when it is ten days old, as quite generally practiced, is a great improvement over the old plan, and takes a great responsibility from the cheese maker.

A number of years ago at one of the meetings of the New York State Dairy Association, when the price of cheese was low and the trade in a very unsatisfactory condition, the question of its improvement was one of the subjects discussed. Mr. Thurber of New York, a large wholesale dealer, voiced the opinion that we were catering too much to the English demand for a dry, solid cheese; that with the large amount Canada was sending them and our surplus, they were receiving an abundant supply and the price was bound to be low as long as that condition continued.

He said, "we are importing a large amount of the fancy foreign varieties, and there is no reason why New York dairymen should not learn how to make these cheese and supply a portion of that trade, and if you will supply the American consumer with a mild, good-flavored cheese in small sizes, a very much larger amount will be consumed at home than is now the case." The wisdom of Mr. Thurber's advice is very clearly shown by the development of the soft cheese industry during the last few years. The figures show a wonderful change from those in 1880 when the export trade was at its height. Gradually the skill of the cheese maker has been changed from an effort to produce a cheese that would



FIG. 49.— SOME OF THE MEN WHO HAVE BEEN INTERESTED IN CHEESE INSTRUCTION IN NEW YORK STATE—TAKEN IN 1908.

Top Row.— C. A. Publow, W. A. Stocking, A. B. Hargrave.

Middle Row.— H. C. Troy, J. L. Gibby, W. W. Hall.

Bottom Row.— R. R. Kirkland, G. A. Smith, H. A. Rees, R. A. Pearson.

satisfy the export trade to cheeses that would better please the American consumer—smaller in size, moister and milder in flavor. The increased demand for milk in the cities shows the relations most clearly. This increasing demand has compelled the distributors of milk in the cities to gradually extend the circle from which they obtain their supply until the railroads are running trains entirely for milk into the extreme parts of the dairy sections of New York State to supply the large cities. At the time of the establishment of the Dairy Commission in 1884 the amount of milk reported as received in New York City was 48,358,310 gallons. The census of 1880 gives the amount of milk sold in the state as 231,965,533 gallons. The census of 1909

gives the amount of milk sold in this state as 524,279,423 gallons.¹ The figures obtained show a large increase in the sale of milk. The export as previously given was in 1880 148,000,000; in 1896 it had dropped to 33,917,040 pounds and has continued to drop until at the present time there is practically no cheese exported. A part of this is accounted for by the large increase in the consumption of milk, and it would seem that the following report of the New York State Department of Agriculture for 1908, which is the last one available giving this complete report on varieties and quantities manufactured, would account for the balance. The United States census does not take up any detailed report of this character.

American cheddar.....	77,821,109	pounds
Skim.....	10,725,699	"
Pineapple.....	255,778	"
Limburger.....	6,187,801	"
Domestic Swiss.....	968,952	"
Kosher.....	213,959	"
D'Isigny.....	987,454	"
Neufchatel.....	1,905,263	"
Fromage de Brie.....	172,660	"
Square cream.....	1,447,442	"
Imitation English dairy.....	337,310	"
Weiner.....	4,800	"
Sage.....	180,589	"
Munster.....	671,881	"
Pot.....	7,639,364	"
Italian.....	1,459,144	"
Pressed.....	439,092	"
Casciocavalio.....	354,421	"
English dairy.....	337,310	"
Various other kinds.....	782,686	"

This makes a total of 112,555,404 pounds which is very little short of the amount made 30 years ago. The last census reports cheese 105,194,898 pounds, soft cheese 4,512,541 pounds, these figures being for the year 1909; while those of the Department of Agriculture for 1908, compare fully as closely as could be expected in total amount. The census also gives condensed milk 120,001,999 pounds from 36 plants, dried casein 6,712,971 pounds. In the summing up, the census report places New York

¹ The chief of the Census reports the number of farms in this State as 215,597, of which 184,024 report keeping dairy cows, but only 132,204 report the sale of dairy products, which would not seem to be correct. Owing to the incompleteness of the returns the Census authorities say that it is impossible to determine the whole value of dairy products in this State.

first in condensed milk with 28.1 per cent., second in cheese with 33 per cent. and fourth in butter with 7.5 per cent., of the whole amount manufactured in the United States. It would seem, taking the high price that dairy products have sold for in the last few years without depending upon outside markets, that the prophecy of Professor Arnold made at the meeting of the New York State Dairy Association in 1882, had come true. He said if our cheese makers would take one-half the pains to please the palate of our own citizens that they do the prejudices of English shippers, the home consumption of cheese would increase so rapidly that in a few years' time there would not be a single pound of cheese to spare.

CREAMERIES PAST AND PRESENT IN NEW YORK STATE

W. E. GRIFFITH, Madrid, N. Y.

Dairy Expert, Department of Agriculture

The process of making butter has been in practice for many centuries. The value of the fat globules in milk have been recognized and various methods or systems employed to collect them into more compact form. This increased the keeping qualities, as well as being convenient.

It is reported that the first churns of which there is a record consisted simply of a skin into which the milk or cream was placed. This was agitated until the globules of fat, coming in contact with each other, were united into granules of butter.

The practice of setting milk into small pans, allowing from twelve to twenty-four hours for the cream to rise to the surface, after which it was removed by the use of a skimmer, is well within the recollection of middle-aged man. This had its advantages in that the period of time (12 to 24 hours) furnished sufficient time for holding the fat at a reasonably low temperature, so that a firm body was the usual result; also the average housewife was careful about having the utensils clean. The pan process usually resulted in a cream that was fairly free from undesirable flavors. It has been said that butter made today does not have the flavor of that made on the farm by the ordinary pan process. This opinion may be based on the fact that in the churning process some buttermilk is locked up in the butter, thus giving the desirable flavor. The two most serious objections to this method are the loss of fat and of labor. According to the reports of scientific men, only about 80 per cent. of fat was secure, while the balance remained in the skimmed milk. The amount of labor for the housewife necessitated the change in the manufacturing of butter.

The idea of delivering milk from several farms to one central plant was suggested and the result was the birth of the creamery. In the method of Cooley cans or deep setting, the milk was received at the creamery, weighed, and the patron credited with his weight

of milk. It was then run into cans, standing about 18 inches high and 6 inches across. These cans were then placed in pools, through which running water was passing. Ice was often added, since a quicker and more complete separation of the fat from the milk could be secured by having a low temperature. After the milk has been subjected to this low temperature for twelve hours the cream was removed, and with less loss of fat than by the shallow-pan method. The creamery gained in popularity and the number of dairymen in a community who delivered milk to a central plant increased rapidly.

The growth of the creamery attracted the attention of thoughtful men, who turned their minds toward the development of machinery which would lessen the loss of fat and reduce the amount of labor in making butter.

Since the fat in milk came to the surface in the form of cream, it was apparent that the fat must be lighter than the milk serum. The difference in the specific gravity finally led to the construction of the centrifugal separator.

The construction of this machine and its subsequent improvements up to the present time have completely revolutionized the creamery business. The capacity of the first machine was limited, but by the addition of various devices for breaking up the wall of milk into thin layers inside of a separate bowl, the capacity has been increased, and the loss of fat in the separating process has been practically eliminated.

It has been known for many years that the percentage of fat from various breeds and individual cows varies considerably. It remained for Dr. Babcock to perfect a machine that furnished a means of determining the butter fat content of milk. The Babcock tester is recognized, throughout the dairy sections, as the most practical and accurate mechanical method for the testing of milk. There have been improvements in the glassware used in the Babcock tester, but the general idea and principle remain the same as when Dr. Babcock first gave this wonderful method to the public.

Since the general adoption of the improved centrifugal separator and the Babcock tester, men have turned their attention to the improvement of the vats used in the ripening of cream. At

the present time every up-to-date creamery has a cream ripener of some kind. This cream ripener consists of a round-bottomed vat with some device which is kept in motion by machinery, for the purpose of keeping the cream perfectly mixed. There is also a tight-fitting cover which assists in regulating the temperature of the cream and protects it from any outside contamination. These cream ripeners are being recommended for the pasteurizing of milk or cream. They also serve as a suitable holding device.

Many new ideas have been adopted by creameries of the present day. The moisture test used for determining the amount of water in butter, also a test for ascertaining the amount of salt in butter, is being rapidly adopted by the better class creameries.

In the early days running water was the first consideration in the selection of a site for a creamery, but at the present time it is not given preference to the exclusion of all other necessary features. Suitable drainage is equally important. Marked improvement can be seen in the creameries of New York State by the use of cement, improved light, drainage and sanitary equipment.

From the custom of delivering milk to the factory and having it separated, the skim milk being drawn back to the farm, we now have the small-sized centrifugal separator on the farm. It is equally as efficient as the factory machine and is easily operated, with the advantage of having the warm, sweet skim milk at hand to obtain the most of its food value. The amount of cream that must be delivered to the factory will represent about 10 per cent. of the weight of the whole milk. Usually a cream wagon gathers the cream from the various dairyman and entirely relieves him of the work of hauling his product to the factory. This custom is gaining very rapidly in the state and is surely causing a change in our creameries, similar if not quite equal to the change brought about by the centrifugal separator.

Theoretically the cream that is separated as soon as it is drawn from the cow should have advantages over the milk that must be cared for and separated at the factory. We naturally would expect a better quality of cream, but often this does not follow. Possibly it is due to the fact that many dairymen imagine that cream, when separated, will take care of itself; also the fact that it is not

gathered every day, and the cream route is frequently many miles long and the first cream taken on the wagon is subjected to the jolting and effect of the hot sun during the summer months. The rapid growth of this process has necessitated the adoption of improved machinery, also the manufacture and use of commercial starters.

The creameries of New York State are steadily improving and the butter makers are having the advantage of work being done by the New York State Department of Agriculture. Our dairy schools and experiment stations and the quality of butter manufactured in this state compare favorably with all other states.

BUTTER MAKING ON THE FARM

EDWARD VAN ALSTYNE, Kinderhook, N. Y.

Director of Farmers' Institutes

Twenty-five years ago a goodly portion of the milk from the New York State dairies was made into butter on the farm. Often in the hill counties it was held in cool cellars until the fall, the "June butter" commanding a high price.

In those days few institute programs were complete without this subject; today it is rarely called for. What has brought about the change? The advent of the creamery equipped with modern appliances, employing a skilled butter maker able to control conditions and supplying a uniform product the year around; a butter more generally acceptable to the consuming public than the farm product. Lack of help in the house made many a good farm butter maker glad to embrace the opportunity to patronize the creamery, particularly as the returns were in cash monthly rather than in "trade at the store."

Closely following the advent of the creamery came the increased call for milk to supply the cities and milk stations. Milk trains invaded the interior towns, and the whole milk was purchased at much better prices than could be obtained for it when made into butter—to say nothing about the saving in labor. For this reason the farm butter maker has passed, or is passing. All honor to that splendid army of farm folk who by this product of the cow paid for the farm, educated the children and supported the Gospel. A few remain to this day who for various reasons still find butter making the best way to dispose of their milk. It is the purpose of this article to record the facts concerning this once so important industry as well as to assist those now engaged in it.

THE ADVANTAGE OF THE CREAMERY

The chief advantage of the creamery over the farm butter makers is the ability to control conditions by suitable equipment, the more economical handling of a large product, and the saving of labor on the farm. There is no greater autocrat than the cream jar. While a more uniform product is turned out from the creamery, and a decidedly better one when compared with all the farm butter, yet no finer butter ever was or is made than by the skilled farm butter maker with control of everything from the cow — her care and feed as well as her milk from the time it is drawn from the udder until the cream is separated, ripened and churned.

Only from rich milk can one afford to make butter as compared with milk station prices. For example, with milk testing 4 per cent. fat it will require about ten quarts to make a pound of butter. This would make thirty cents net per pound to be equal to three-cent milk. When the price of milk increases or butter decreases, the margin is decidedly in favor of the former. Below that amount of fat it is easy to see that butter must be made at a loss. In sections where butter cows make up the bulk of the dairies I have always questioned if the farmer is really as well off today selling his milk as when he made it up at home. True, he received less gross returns than now, but most of what he had then was net. He fed chiefly what he grew on the farm. His cows did not give as many quarts in a year as now, but many have not learned the lesson that it is not the amount of our gross sales which determines our profit but what we have left after we have paid the cost of production. He had his skim milk and buttermilk to feed the calves and hogs, with the result that he raised his own cows and consequently always had some to sell. The sale of pork also brought him in a nice sum of money each year. Both young stock and swine helped to make valuable farm manure. There was no need of the daily trip to town with the milk; both man and team were able to make full time on the farm.

Now a large portion of the monthly milk check goes to the feed dealer and too often no calves are raised; hence the dairyman, out of his annual receipts, must pay for cows to maintain

his dairy, running the risk of getting those both inferior and diseased. There are no more swine to utilize the skim milk and other by-products. Instead of having pork to sell, the farmer frequently buys his own or becomes a patron of the butcher shop for hams, lards, sausages and bacon. A man — often the farmer himself — and team makes the daily trip of from two to six miles to the station, a most serious loss to the farm. Not only the time necessary to make this trip is consumed but it is not uncommon to see teams at the hitching post or under the tavern shed while the owner is engaged in settling the affairs of the nation instead of those of his own farm, if he is not “practic-



FIG. 50.—OLD FASHIONED DASH CHURN.

ing at the bar” of some hotel. This is a frequent occurrence today. In view of all these facts if one has the right kind of cows and conveniences, and the time and skill to give to it, he may still do well to turn his attention to farm butter, particularly if he is near a city or town where people will be glad to pay him a premium for first-class butter delivered regularly. The market also offers good prices for buttermilk.

THE EVOLUTION OF THE BUSINESS

Formerly the method followed was that of the shallow pan set on a shelf in the cellar to be individually skimmed daily, and

when the temperature was not uniform much of the fat was left in the thick milk. With this went the old dash churn into which the "witches often got" when the butter would not come. These were driven out with a hot horseshoe which raised the temperature of the cream and brought the butter, even if it spoiled the flavor and the grain.

Following this came the large pan set in cold water and the wholly or partially submerged shot-gun can. Where cold water was abundant, this enabled the butter maker to control conditions very much better and saved a deal of labor, although the thin



FIG. 51.—REVOLVING CHURN.

cream was not nearly so churnable as that from the shallow pans. With this came the revolving churn by which the butter could be brought into granular form. These appliances, on the whole, improved the quality of the farm butter. Then came the centrifugal separator, rather slow of adoption because of the high price asked for them and because much labor was required to turn them where no power was available. However, when it was realized that under ordinary conditions with the old methods there was a loss of fat in the skim milk averaging probably half a pound to

every one hundred pounds of the whole milk, people were willing to pay the price. Shortly after, the gasoline engine at a moderate price furnished necessary power. With the reduced price of the separators they have now come into quite general use.

SOME NECESSARY ESSENTIALS

First, a butter cow; then a clean — not necessarily an expensive — stable. Next, a suitable place to hold the milk or cream where the temperature is not high and can be kept uniform and away from all objectionable odors. In many cases this would mean the house cellar. If enough milk is handled to make a real business of it, a specially constructed room would be better. Either should have a cement floor and good drainage. A steam boiler is important even if the separator is run by a gasoline engine or electricity. Such a one can be purchased for thirty dollars. This will heat water and provide plenty of steam for cleansing purposes at a small cost for fuel.

An essential in making good butter is cleanliness of the cow, her surroundings, the milker and the utensils, from the milk pail to the package in which the butter is sent away. The first can be attained by any one as the result of a little effort. The second needs in addition, good tinware, plenty of boiling water, or still better — steam. The latter is all important, since unless utensils are subjected to a boiling temperature for at least two minutes, the bacterial germs that produce decay will not be killed.

The flavor, counting forty-five points in the score, is not dependent on the breed of the cow in any wise. As fine flavored butter as I ever tasted came from a herd of pure-bred Holsteins. The feed, environment and handling have all to do with flavor. Yet I would advise all who are to make butter making their business, to select the Channel Island cattle or their grades; first, because they have been bred for this special purpose for over two centuries and will make a pound of butter fat for the food consumed cheaper than any breed on earth; second, because they make a butter of much finer texture that will handle under ordinary conditions much better than that from other breeds with a smaller fat globule, and they impart a higher color to the butter

than do other breeds. As an illustration: At the Pan-American dairy test, where we had the cream of ten breeds to handle separately, we found no difference in the cream until it came to be churned. Then, with each lot ripened alike, we found we could take that from the three Channel Island breeds and churn it at a temperature of 60 degrees or above and still have a butter that we could work and print in a room with a temperature of 70 degrees, while that from the other breeds, in order to handle at all under such conditions, had to be churned as low as 40 degrees, requiring a long time (often two hours) to get the butter; and frequently it would have to be put in the cooler after working to harden, before it could be printed.

Unquestionably as good butter has been and can be made from the old shallow pans as by any other method, but it is much more



FIG. 52.— HAND SEPARATOR.

difficult, both to get all the fat and control conditions. We believe it is poor economy to attempt to make butter today except with a good *centrifugal* separator, not a so-called “dilution” affair, which is no more a separator than is the shallow pan.

The machine should be well and simply constructed, durable, easy to skim *clean*, and deliver a cream not less than 40 per cent. fat. It should be as easy of operation as is consistent with the above. Such will not only secure all the fat but shorten the time between milking and churning at least 24 hours.

With a heavy cream (say 40 per cent. fat) there will be less volume to handle, it can be churned at a lower temperature and still give an exhaustive churning in a reasonable time. It is important that the cream from the separator should be cooled thoroughly before it is put to ripen. Unless one wishes to churn

within 24 hours after separation, it is not essential that it should immediately be cooled to 40 degrees, a process often requiring much ice and one often inconvenient and expensive. If it is cooled to 55 or 60 degrees and the cooling takes from 6 to 10 hours, just as good results will be obtained, provided the cream is held at that temperature for at least 12 hours more. In fact, I have uniformly gotten a higher flavor from cream held cold for such a period and then warmed for ripening than from that quickly cooled, then ripened and churned within 24 hours after separation.

For the farm dairy I would suggest the following as a simple, inexpensive and satisfactory method of ripening: The day before the cream is to be set to ripen, take the milk from a fresh cow and run it through the separator. Then put a quart of such skim milk in a glass fruit jar. Heat it in a hot-water bath to 90 degrees, cover tight and set away where the temperature is about 70 degrees. The jar can be wrapped in a blanket, which will help to keep a uniform heat. At the end of twenty-two or twenty-four hours this should be a nice "lobber." Remove an inch from the top and after beating up the balance, so there are no lumps left, stir about a teacupful into each gallon of cream when heating it up to ripen,—from 65 to 70 degrees, according to the season. Never use buttermilk for a "starter" if there is anything not just right with the churning; it is carried to the next and so the trouble will grow. Hold the cream until ready to ripen at a temperature between 40 and 50 degrees. Never put fresh cream with that which has begun to sour. In any case wait until the fresh cream is the same temperature as that held. One cannot expect to make a really high-flavored butter if the cream is held longer than three days.

Put the cream after heating in the ripening vat or can with the cover on. If held at a temperature not below 55 or 60 degrees at the end of 24 hours it should be just right to churn, not necessarily very sour, as cream may be too acid as well as not acid enough to get a satisfactory churning. It should look like satin; when it is stirred and it drops from the paddle it should make a slight indent as it falls on the mass.

If the cream is too warm to churn it should be cooled and held

at the churning temperature for at least an hour before churning. Unless this is done, if the weather be warm, the butter will soften in the worker, for butter globules do not harden quickly at a temperature above 40 degrees.

The temperature at which cream should be churned will depend on the breed of the cows, the length of time they have been milked, their feed as well as (indicated above) the way the cream has been separated, and the season of the year. Each maker must determine this for himself. A good general rule is: Churn at the *lowest* possible temperature; so as to get all the butter in a reasonable time,—from thirty to forty-five minutes. When the granules are like wheat grains, stop the churn, and if the buttermilk is not wanted for human consumption a dipper or two of cold brine will help clear off the buttermilk from the butter.

Another general rule: Wash with water at as high a temperature as possible and have the butter remain hard. Too cold water tends to chill the granules and so the salt will not dissolve, causing mottled butter. Usually two washings are sufficient; always use enough water to float the butter. Too much washing will injure the flavor. In any case the buttermilk must be washed out.



FIG. 53.— BUTTER WORKER.

I prefer to salt in the churn, as the temperature there is more uniform than it is in the open worker. When one knows the amount of cream and the amount of butter such will yield to the gallon, it is very easy to determine the amount of salt required.

If the granules are large, more will wash away in the working. In that case, salt a little heavier than if the granules are small. An ounce to the pound will suit most people, but it is always wise to salt to suit the customer. Never use a cheap salt. Work the salt in with a fork as one would spade a garden. Then revolve the churn to bring the butter into a mass. It can then be easily put in the worker. Let the butter remain in the churn if possible an hour after salting; then work till the butter, when broken, is the grain of fine steel. In cold weather it is a good plan to heat the salt, as it will then dissolve more readily when coming in contact with the butter in a cold room. Put in the most attractive package and get to the customer as soon as possible. Remember the butter maker will stamp an indelible likeness of himself on his product, either for good or ill.

THE LAW RELATIVE TO THE SUPPRESSION OF BOVINE TUBERCULOSIS

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The enforcement of the law relative to the suppression of the infectious or contagious disease known as tuberculosis was placed in the Department of Agriculture under the supervision of the Commissioner of Agriculture by Chapter 321 of the Laws of 1901.

At that time it was provided that animals suffering from this disease might be killed by order of the Commissioner of Agriculture, and no regulation was made for paying for animals slaughtered under the provisions of the law except in cases where post-mortem examination of the animals killed failed to reveal the existence of the disease for which they were slaughtered or any dangerously infectious or contagious disease that would warrant the destruction of such animals, in which case the owner should be paid the appraisal value thereof. It further provided that such value should be the market value at the time of making the examination as though the animal were not diseased, but that the appraisal value of each head of cattle should not exceed \$60 for a pure bred or \$40 for a grade.

The law remained in this form until 1905, when by Chapter 167 of the Laws of that year, it was provided that animals slaughtered by order of the Commissioner of Agriculture on the ground that they were suffering with tuberculosis, should be paid for at the actual appraisal value, not to exceed \$40 in the event that the post-mortem examination disclosed the fact that the animal was not suffering from the disease, or any dangerously contagious or infectious disease that would warrant the destruction of such animal, except as herein provided. It further stated that no animal slaughtered should be paid for unless the animal had been within the state for a period of at least one year.

The following provision was made for payment when the post-mortem examination showed that the animal was suffering with the

disease, namely; if the animal was suffering with localized tuberculosis, the owner was to be paid 60 per cent. of the appraisal value, and if generalized, 40 per cent. of the appraisal value.

The law was again amended by Chapter 518 of the Laws of 1908, making the following changes, to wit; raising the limit of appraisal value to \$75; the payment to 80 per cent. of the appraisal value for animals found to be suffering with localized tuberculosis and 50 per cent. of the appraisal value for animals found to be suffering with generalized tuberculosis. The statute was also amended by adding the following words:

"If the meat of the slaughtered animal shall be passed for use as food, under official regulations, the commissioner of agriculture is hereby authorized to sell the same and the proceeds from the sale of the meat, hide and other marketable parts of the said animal shall be paid into the state treasury. For each and every day the owner or custodian of the animals condemned is obliged to keep them, in excess of seven days from the date of the condemnation, he shall be allowed and paid the sum of twenty-five cents per day per head."

The statute was again amended by Chapter 670 of the Laws of 1910 in relation to appraisal, providing in substance that the limit of the appraisal value of bovine animals which were registered thoroughbred animals should not exceed \$125 and other bovine animals \$75.

BOVINE TUBERCULOSIS

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Tuberculosis is one of the oldest known diseases of animals, affecting nearly if not all species, as well as the human family. Among our domestic livestock, cattle, swine and fowls are its most frequent victims. In cattle it is known as *bovine*, and in birds as *avian* tuberculosis; while *consumption* is the term commonly applied to the disease in man.

In this country bovine tuberculosis was evidently not known to exist to any great extent until the past few decades, its dissemination in later years having no doubt been assisted by the increased traffic in cattle; the importation of diseased stock from other countries; the more or less artificial and unsanitary conditions under which dairy animals were kept; the feeding to calves of raw milk containing living tubercle bacilli and other indirect influences. The discovery of tuberculin as a means of diagnosis was an important factor in showing the frequent existence of the disease in cattle.

The cause of this disease, the bacillus of tuberculosis, was discovered by Robert Koch, a German physician, in 1882. It is a rod-shaped germ or microbe belonging to the vegetable kingdom (bacteria) so small that it can not be seen except with a powerful microscope. These little organisms are taken into the body principally by means of infected food or water, although air was formerly believed to be the most important carrier of infection. After lodging in the body of the susceptible animal, these bacteria are capable of producing others of their kind by dividing and sub-dividing, and eventually small diseased areas or tubercles are produced; hence the name tuberculosis. This disease, therefore, belongs to the class of infectious or communicable diseases and can occur only by the entrance and development of the germs in the body.



FIG. 54.— APPEARANCE OF HEALTHY LUNGS OF COW.

Tuberculosis differs from many of our specific infectious diseases, being usually chronic in character. It produces its effects largely by the destruction of vital organs or by interference with their normal functions, rather than by the injurious products formed by the germs in their growth and multiplication. Because of this slow development its presence may be unsuspected until several in the herd have become affected. If tuberculosis were more rapid in its development and produced death in a few days the owner would then take prompt action to check its progress and thus protect the remainder of the herd.



FIG. 55.—COW WHICH REACTED TO THE TUBERCULIN TEST.

After the bacteria enter the tissues there at once begins a struggle between the natural forces of the body and these invading organisms. Should the resistant powers of the animal be sufficient, the germs may be overcome and infection not take place, or even if the disease becomes located it may later be arrested or checked and the bacteria prevented temporarily or permanently from doing further harm. If, on the other hand, the attacking germs are sufficiently active, the disease may be established and as succeeding organs or parts of the body are involved vital functions are interfered with and death may result.



FIG. 56.—LUNGS OF COW BEFORE CUTTING OPEN. NOTE NODULAR APPEARANCE WHERE LESIONS EXIST BENEATH.

Tuberculosis is spread by the escape of living tubercle germs from the infected animal, and their entrance and multiplication in other individuals. The spontaneous development of this as of other specific infectious diseases is impossible.

It is very difficult to determine with certainty the presence or absence of tuberculosis by the physical appearance of the living animal, even badly affected individuals often showing no outward signs of disease that can be detected. In fact, there is often no suspicion of its existence in a herd until an apparently healthy animal is slaughtered and tuberculosis found. In Fig 55 is shown photograph of a reacting animal and in Fig. 56 is the appearance of the lungs of the same animal after slaughter.

Because of the great variation shown in the manifestations of disease, no constant symptom peculiar to tuberculosis can be relied on as a means of positive diagnosis. Many of the conditions resembling tuberculosis may be caused by other troubles. A cough should be looked upon with suspicion, although it may be due to many causes. Gradual loss of flesh (emaciation) and a general unthrifty appearance, the appetite remaining normal, is frequently noticed.

The most accurate way of diagnosing tuberculosis in the living animal is by means of tuberculin, for the use of which there are several methods. Tuberculin is prepared by growing germs of tuberculosis on beef broth for sufficient time to saturate the fluid with the products of their growth. This liquid is boiled, then filtered and evaporated to a certain standard strength and carbolic acid is added to preserve it until used. Tuberculin contains no living germs and therefore cannot produce tuberculosis. The usual test consists in the injection of tuberculin under the skin of the animal to be examined, and the taking of temperatures for a time afterward.

DIRECTIONS FOR CONDUCTING TUBERCULIN TESTS, SUB-CUTANEOUS
METHOD, AS ADVISED BY THE DEPARTMENT

1. Make a very careful physical examination of each individual for evidence of any disease or abnormal condition that might affect the reliability of the test. Note all such data in proper place on the temperature chart. Inaccuracies may occur when



FIG. 57.—LUNGS SHOWING TUBERCULOSIS. SAME AS FIG. 56.

animals are tested immediately after shipping or driving, or when tested under exciting or unusual conditions.

2. As large a number of preliminary temperatures as possible should be secured. Take at least three temperature measurements prior to the injection of tuberculin. It is advisable that one of these temperature measurements be taken after feeding. The interval between all preliminary temperatures should be at least two hours, and the interval between first and last preliminary temperatures should be not less than six hours. Any animal showing pronounced abnormal preliminary temperatures should not as a rule be injected.

3. The dose of tuberculin as prepared by the New York State Veterinary College is two cubic centimeters* for full grown (800 to 1000 pounds) cattle. For younger, lighter or heavier animals the dose may be made proportionate. In all cases where a tuberculin test has been made within six months or where animal has been repeatedly injected with tuberculin, a double or larger dose should be given.

4. Inject tuberculin by means of a hypodermic syringe into the loose sub-cutaneous tissue on the middle of the side of the neck or other convenient place. The syringe should be carefully disinfected before using and the needle before injecting each animal. For the former a 5 per cent. solution of carbolic acid may be used; for the latter it is sufficient to dip the needle without removing it from the syringe, into liquid carbolic acid.

5. Temperature measurements should be resumed not more than eight hours after tuberculin is injected. These measurements should be taken at intervals of not more than two hours until at least eighteen hours after injection. If the temperature of any animal at the eighteenth hour shows a rise above the highest temperature of the preceding day of any irregular temperature, the readings of such animal should be continued for a period of at least twenty-four hours after injection or until a definite decision can be reached. Temperature readings of animals that have been injected with tuberculin within six months, or that have been suspicious at any previous test or have had repeated injections of

* About 30 drops.



FIG. 58.—TUBERCULOSIS OF THE CHEST WALL.



FIG. 59.—TUBERCULOSIS OF GLANDS AND LUNGS.

tuberculin, should be resumed not later than six hours after injection and should be continued for a period of at least twenty-four hours after injection.

The retesting of any animal that has once positively reacted to the tuberculin test is not advised. The only safe policy is to consider animals that react definitely to tuberculin as thereafter diseased.

Many circumstances may influence the interpretations of the temperature readings in the tuberculin test. As an aid to those unfamiliar with the use of tuberculin the following may be of assistance:

Animals with temperatures not above 102 degrees before injection, showing a rise to 104 or above after injection, the rise and fall being gradual in character, should ordinarily be considered as having reacted. Those showing temperatures between 103 and 104 after injection should be regarded as suspicious.

Great care should be exercised in applying the tuberculin test and correctly determining results.

Tuberculin even in large doses has the advantage of producing no ill effects in healthy cattle. It has the disadvantage of not showing the extent of the disease, and occasionally fails to indicate the presence of tuberculosis by the rise in temperature in certain cases. This is said to be due to any one of the following conditions:

First. If the germs of tuberculosis have been recently introduced and enough time has not elapsed for diseased tissue to form sufficient to cause a rise in temperature. (*Incubative stage.*)

Second. When the progress of the disease is checked and the abnormal tissues are surrounded or encapsuled. (*Arrested stage.*)

Third. When the tissue is widely distributed or advanced in character, the quantity of abnormal products being supposed to neutralize the action of tuberculin. (*Generalized.*)

METHODS OF CONTROL

Many attempts have been made to prevent young cattle from taking tuberculosis. At present no satisfactory means of immunizing bovine animals against this disease is apparently available. At the time of the discovery of tuberculin by Koch, the use of this

product as a curative or protective agent was widely advocated. It would appear, therefore, that in the control of tuberculosis we must depend more upon reducing the opportunity for infection (exposure) rather than by attempting to produce resistance in the individual. The success of any plan adopted in controlling this disease will depend upon many conditions,—among them being the financial circumstances of the cattle owner, the extent of disease in the herd, the value of the individuals in it, and the possibility of increased returns for the products of healthy cattle both in milk and offspring. • Where the disease is not already present, prevention is a much less serious problem than attempts to eradicate or control the malady in those already affected.

The common practice of not raising the calves from tuberculosis free herds is unfortunate, since such young animals if allowed to live would provide healthy young stock to replenish the milking herds, thereby avoiding the possible introduction of the disease by the purchase of cattle from questionable sources. In addition to this, such young animals would form the foundation for other healthy herds if properly protected from exposure to tuberculosis. Therefore dairymen should raise these calves and if raw milk for feeding purposes is obtained from animals not known to be healthy, it should be heated prior to use. If necessary to add mature cattle to the herd they should be accompanied by satisfactory evidence of freedom from tuberculosis. The owner of a herd of cattle free from this disease should consider himself fortunate and should take every possible precaution to prevent the introduction of infection.

If the tuberculin test is used as a means of control and but few diseased animals are found, their removal from the herd and slaughter is possibly as economical a procedure as any, especially if they are grade cattle and not particularly valuable. With the present prices for beef, the loss in such cases is not great if the reactors are in fair condition and there is opportunity for disposal of the food portion of the carcass under proper inspection.

THE BANG SYSTEM

Where a large percentage of the herd reacts, and especially in the case of pure-bred cattle, the so-called “Bang” system or a

modification of it may be adopted. This plan, suggested by the Danish veterinarian "Bang" and practiced generally in that country, is based upon the fact that calves from reacting cows are seldom affected with tuberculosis at birth. This plan in brief is as follows:

A careful physical examination of the entire herd is made and any animals showing evidence of any unhealthy condition are slaughtered. Then a tuberculin test is made and all reactors subjected to a further physical examination and any undesirable for



FIG. 60.—TUBERCULOSIS OF THE INTESTINAL (MESENTERIC) GLANDS.

retaining are killed. The premises are thoroughly disinfected. The reactors and non-reactors are kept entirely separate, being stabled, pastured and fed distinct from each other. The milk from the reacting animals fed to calves is pasteurized by heating to about 185 degrees Fahrenheit. Frequent examinations are made of the reacting cattle and as soon as any show evidence of unthriftiness or become undesirable, they are slaughtered. The young of the reactors are kept entirely isolated from their mothers and other adults, and are tested as soon as they are of suitable age.



FIG. 61.—PART OF CARCASS OF COW, SHOWING APPEARANCE OF GENERALIZED TUBERCULOSIS — AN EXTREME CASE.

The reactors, if any, are usually killed; those passing the test being placed with the healthy group. The healthy herd is tuberculin tested at about six month intervals and any reactors are immediately placed with the diseased herd or destroyed.

The Bang system is in use on a number of farms in New York State at the present time and has met with considerable success. Some years ago the herd of the Geneva Experiment Station was found to be tuberculous and this plan was put in operation and healthy young animals raised from the diseased cattle with very little loss.

The object of this plan is to eventually produce a healthy young herd to replace the old. Its success depends on many factors, among them being careful pasteurization of the milk, frequent thorough examination of the animals, and the prevention of infection reaching the calves from any source. Its practical value seems to be greater in herds of valuable pure-bred animals and it is doubtful whether it should be attempted except in herds of moderate size. Under ordinary dairy conditions in New York State the feasibility of this plan is questionable unless two distinct sets of buildings are available. On the ordinary farm, the inconvenience necessary in heating the milk daily, the proper isolation of both the mature and young animals and the constant attention to all details should be considered before adopting this method.

PHYSICAL EXAMINATION

Owners of herds, who object to the use of tuberculin should consider the possibilities of the physical examination as a means of controlling the disease. This plan has been followed with more or less success under the supervision of some of our larger milk companies. It is believed that most animals will show evidence of abnormal conditions before they become distributors of the germs of tuberculosis. This scheme, of course, contemplates the finding of so-called spreaders or those in the advanced stage of the disease, and does not presume to detect all that are affected. It is of considerable value, no doubt, in the hands of a competent veterinarian, and while a slower and probably less certain means of checking the spread of the disease in the dairy herd is nevertheless not as expensive as attends the use of tuberculin; and many animals with

udder or advanced tuberculosis could be detected in this way, thereby materially decreasing the number of tubercle bacilli in the milk of the herd.

CONTROL OF THE DISEASE

In attempting the control or eradication of tuberculosis from a herd it should be considered that the disease is tardy in development and is often correspondingly slow in eradication. We must constantly guard against re-infection of the herd, which is always possible. In this connection it should be remembered that tuberculosis is produced only by the bacillus of tuberculosis. Therefore if these germs are prevented from gaining entrance to the body of the bovine animal the disease cannot occur in our dairy herds.

ABORTION

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Generally speaking, we understand that abortion means the expulsion of the fetus from the uterus at such a stage of its existence that, if still living, it is not sufficiently developed to live outside of the mother's body; whereas when the fetus is sufficiently developed to live in the external, the accident is designated premature birth. There is another condition which is spoken of as "still birth," and is applied to the young

which are born at an age when they are so developed that they might have lived, but have perished in the mother's womb.

All these conditions in animals have led us to recognize three classes of abortion:

First, sporadic or accidental abortion, in which, owing to disease of, or accident to the fetus or mother, the fetus may be expelled dead or in a state which renders it impossible to live. This may be due to injury to the mother, mechanical violence, slipping, certain operations, such as spaying, severe hemorrhages, or acute digestive disturbances, colics, etc. Abortion under these conditions occurs more frequently in the mare than the cow, but due precaution should always be exercised in handling or medicating sick animals that are in advanced pregnancy. Certain drugs, and mouldy foods, etc., have been accused of causing abortion, and while the weight of evidence seems to be contrary to this belief, this should in no way encourage carelessness along these lines.

Second, enzootic abortion, due to some infectious disease of the mother which brings about the death and expulsion of the fetus as a complication of the maternal disease. To illustrate: There is sometimes an unusual loss of undeveloped calves in a herd, but instead of the trouble being an independent disease known as infectious abortion, it is rather the result of some other specific

disease which has weakened the mother and the generative organs so as to cause death or expulsion of the fetus. This is not an uncommon condition when contagious cellulitis attacks a band of brood mares, or foot and mouth disease or contagious pleuropneumonia, a herd of cows. In sheep pox, abortion is said to be frequent, and pregnant sows suffering from hog cholera often abort.

Third, infectious abortion. Our belief as to the modes of transmission and methods of control of infectious abortion, as with any other communicable disease, the causative factor of which has not been determined, was more or less oscillating and uncertain until very recently, but the knowledge given to us by Professor Bang of Denmark, and the Department of Agriculture, Washington, D. C., again demonstrates that the advancement in controlling any scourge is only proportionate to our ability to lift it out of the realm of empiricism and superstition and place it on a scientific basis.

Infectious abortion of cattle is now defined as a specific infectious disease produced by the *bacillus abortus* of Bang, and characterized by inflammatory changes of the mucous membrane of the uterus and fetal membranes, resulting, as a rule, in the premature expulsion of the fetus. Other names by which this affection is known are, contagious abortion, epizootic abortion and slinking of calves.

A vast majority of all abortions in domestic animals is due to infection, and therefore this is the form of abortion which concerns us most at present. From the viewpoint of economic importance, abortion among cattle ranks with bovine tuberculosis as a dairy scourge. Aside from the loss of the calves, the loss occasioned by the reduction in milk supply, together with the failure to conceive for several months, or forever, after the abortion, and the frequency of retained placenta, are some of the things that dairymen know only too well. It would be difficult to even approximately estimate the financial loss occasioned annually by this disease, but it is known to exist in all sections of the country, both in dairy and range cattle, and judging from the cases that come to official notice, it can be safely stated that the loss in our own state reaches into the hundreds of thousands of dollars annually.

Infectious abortion is insidious in character and may be brought into a herd by an unsuspected animal without attracting attention, inasmuch as usually there are no pronounced symptoms present in the diseased animal. Cows of all ages are more or less susceptible to the disease. Animals in the first or second pregnancy are more apt to abort if exposed than at any other time. Cows that have aborted once may abort a second time, but abortion in the same cow more than twice is unusual. Heifers from aborting mothers may be less susceptible than those born of non-infected dams.

MANNER OF INFECTION

Infection may be caused by interchange of cattle, by visiting neighbors, or the custom of one neighbor assisting another in delivering a fetus or removing fetal membranes without the use of disinfectants to control the infection; careless veterinarians attending an abortion case and not using the proper outer clothing, rubbers, etc., which should be removed and disinfected before visiting another herd; likewise carelessness in not properly cleansing the hands, thermometers, or anything coming in direct contact with the infected parts that would be equally in prominence in the examination of the next animal or herd; failure to properly dispose of the aborted fetus and membranes, which may be carried from place to place by scavengers, such as birds, dogs, foxes, skunks, etc. It is not known whether the disease can be spread through the air without an intermediary bearer.

It is now pretty well determined that infection through the gastro-intestinal tract is one of the most common causes of infection; therefore any fodder or substance which has come in contact with infected material by careless attendants getting the discharges of an infected animal on the shoes, and then walking in the mangers or in the hay mow, silo or feed bin, without first disinfecting the shoes, might carry contagion enough to infect several animals. The bull is likewise looked upon as a very potent factor in the distribution of this disease. "Paulsen" cites a case where, on a farm that had always been free from the disease, seven out of a herd of sixteen cows were served by a bull from infected premises, causing abortion in five cows within ten weeks, one in three months, and one in four and one-half months after service.

THE PERIOD OF INCUBATION

Since it is generally regarded that this period extends from the date of exposure to the expulsion of the fetus, it really takes in the time of incubation and duration of the disease. This is very irregular, but it is safe to say that under ordinary farm conditions infectious abortion occurs from the second to the eighth month of pregnancy. Abortion rarely occurs under three months, and any fetus expelled later than eight months, if it lives, should rightly be called premature birth.

SYMPTOMS

The symptoms depend largely on the stage of gestation at which the disease appears; those exhibited in the early months of pregnancy by a cow about to abort are usually so slight as to pass unnoticed. When premonitory symptoms are observed they are usually manifested for two or three days before the expulsion of the fetus, by a swelling of the udder and external genital organs, and the appearance of a mucous discharge from the vagina. In addition to these symptoms the animal oftentimes manifests a restless condition, moving about and switching the tail very much as if suffering colicky pains. This is particularly true with young heifers, but is more apt to attend such cases of abortion as are classified as sporadic. These symptoms, however, are not positive proof that abortion will occur. The increased size of the udder would of course be noticed in non-milking females only, and the other symptoms are sometimes quite prominent in an animal that is simply in heat. It is quite probable that many of the animals which dairymen look upon as having "failed to catch" have conceived and aborted without the animals being noticed. This is true where animals abort early in gestation, since the fetus and membranes are readily expelled at the same time and leave no evidence of the abortion. Following the abortion of a fairly well-developed fetus there is a dirty yellowish-gray discharge described as muco-purulent. The retained placenta, if not removed in a few days, or the animal not properly douched, will necrose (rot) and extend to the lining of the uterus, which will cause more or less systemic disturbance and may cause a thickening or diseased condition of the walls of the uterus. This neglected condition is apt to interfere with subsequent conception.

It is pretty safe to regard all cases of abortion in a dairy as suspicious and treat them as infectious, particularly if the disease exists in the vicinity, or if any new animals have been added. Williams, of Cornell, states:

"Infectious abortion is to be carefully differentiated from the granular venereal disease, which, although causing abortion in 50 to 70 per cent. of the pregnant cows attacked, is nevertheless a quite distinct malady and offers a different problem in handling.

In valuable herds, where conditions seem confusing, resort can be had to bacteriological examinations. Smears can be made from the contents of the fetal intestinal tract or from the vaginal discharge of the dam soon after abortion; or blood may be drawn from the jugular vein of the animal in question, in a sterile bottle, and sent to the State Veterinary College for examination by what is termed the agglutination and the complement-fixation tests. While these tests are not infallible, still experience is increasing their value as diagnostic agents in a herd test, rather than conclusive evidence on any individual.

PREVENTION AND TREATMENT

The treatment of the cases termed "sporadic abortion," to be of any value, must be applied promptly as soon as any symptoms make their appearance. The writer has been successful, in both mares and cattle, in allaying symptoms where, to all appearances, sporadic abortion was indicated, by immediately removing the animal to a well-bedded box stall and quieting as quickly as possible. This is oftentimes accomplished by giving an ounce and a half to two ounces of chloral hydrate dissolved in a quart of water, for the cow, and about an ounce dissolved in the same amount of water for the mare. An examination should be made, and if the neck of the womb is not perceptibly dilated, a douche of two ounces of laudanum in a quart of warm water will soothe and allay the pains in this region. This treatment may be repeated two or three times during twenty-four hours if indicated. If, however, the maternal organs have been sufficiently disturbed to create strong labor pains, the probabilities are that the animal will abort under most any treatment.

In treating enzootic abortion, our efforts must, of course, be directed toward controlling the disease that is causing abortion.

INFECTIOUS ABORTION

Since it has been determined that with this disease, like most infectious diseases, one or more attacks produce a certain amount of immunity against a subsequent attack, an attempt is being made by several laboratory workers to prepare a vaccine composed of dead Bang bacilli or attenuated (weakened) live bacilli, with the hope of producing immunity, such as, for instance, is now enjoyed in that common disease known as smallpox in the human family. No definite results have as yet been obtained along these lines, and it would be the writer's opinion that our hopes can hardly be as sanguine as they might be if *one* abortion established a more satisfactory immunity against subsequent abortion.

In relation to the prevention and treatment: In a bulletin published by the United States Department of Agriculture, Mohler, who has made an exhaustive study on this subject, states the following:

"The principal method of treating infectious abortion is through prevention. No medicinal treatment has thus far been discovered for the cure of this disease, and the best methods of disinfection known to science are required to eradicate it from a herd. These procedures should be executed with the most exacting care and should include the disinfection of the animals as well as their surroundings.

"When the disease has made its appearance in a stable the healthy cows should be changed preferably to an uninfected stable or premises. This is frequently difficult to carry out, and where it is not possible the aborting cows should be kept by themselves in another stable, or in an isolated portion of the stable with a temporary partition separating them from the healthy animals. Separate attendants should be provided for each herd, and there should be no communication of any kind between the two herds. If a cow develops prodromal symptoms of abortion she should be removed at once to the infected stable.

"As soon as an animal has aborted, the fetus and membranes should be immediately carried away and destroyed by either burning or deep burial after covering with lime, as the abortion bacilli are extremely numerous in these tissues. The vaginal discharge which follows is likewise very virulent and therefore should be disinfected, while the genital passages of the cow should be irrigated with an antiseptic solution and the animal kept from coming in contact with healthy cattle. The afterbirth, which is retained in most abortions occurring during the later months of pregnancy, should be removed within a few days. If it does not come away readily, do not forcibly remove it, but irrigate the uterus with a gallon or two of a warm disinfectant solution twice daily. This irrigation of the genitals is best accomplished by means of a soft rubber tube introduced into the vagina, and if possible into

the uterus, with a funnel in its outer elevated end. About 1 gallon or more of a one-half to one-quarter per cent. solution of liquor cresolis compositus, lysol, or trikresol, 1 per cent. solution of creolin or carbolic acid, or 1 to 1,000 potassium permanganate solution, should be introduced into the womb, and this treatment should be repeated every day so long as any discharge is observed from the cow. Afterward it should be used once weekly until it is time to breed the animal. In addition this cow, as well as every cow in the stable, should be sponged every morning around the vulva, anus, perineum, and root of the tail with a disinfectant solution twice as strong as that used for irrigating the genitals. Furthermore, every cow in an infected herd should have the genital tract irrigated as above, even after an apparently normal parturition. W. L. Williams reports very good results from using one-fourth to one-half per cent. Lugol's solution for irrigating the vagina during one estrual interval—that is, a period of 21 days—before breeding. The use of this solution is said not to prevent conception even if used one hour before service.

“It is not advisable to breed a cow for at least two months after she has aborted, and not even then if the discharge has not ceased. If these precautions are neglected and the bull is allowed to serve the cow as soon as she comes in heat after aborting, the uterus will not be normal, and the animal will not conceive or the fetus will be expelled when quite small, while in a short time the cow comes in heat again. These very early abortions are as a rule not noticed, but as the system of the cow adapts itself to the infection, either through tolerance, immunity, or a loss of virulence of the bacilli, the period of retention becomes longer and longer, until finally the cow is immune and carries the fetus the full term of gestation. It generally requires from two to three years for the cow to become immune and even then there is a possibility of the cow acting as a carrier of the virus, and the bull which during that time serves this cow may transmit the infection to all other cows that he may cover if precautions are not taken to prevent it. For this reason it is not advisable to sell or otherwise dispose of the animals that abort and replace them with new cows, as such new animals are very likely to become infected. Only those which after treatment prove to be permanently sterile should be prepared for the butcher.

“In order to prevent a bull from carrying the infection from a diseased to a healthy cow, it is necessary to irrigate and disinfect the sheath and penis before and after each service.

“When a stable has become infected, it should be carefully and thoroughly disinfected. The cattle should be removed and the stable kept empty for two or more days. The walls, floors, and gutters should be scrubbed and the ceiling brushed clean of dust and cobwebs, and then a 3 per cent. solution of liquor cresolis compositus, lysol, carbolic acid, etc., should be applied with a force or spray pump so as to force the disinfectant into the cracks and crevices. This disinfection should be repeated after each abortion. In addition to the above measures it is necessary to clean out the barnyard, removing the manure and contaminated litter to some field not accessible to cattle, where it is plowed under. The surface of the yard should be sprinkled with a solution of copper sulphate, five ounces to a gallon of water. Milking stools and other implements should also be thoroughly disinfected.”

A very recent publication of the Vermont Experiment Station, from the pen of Dr. F. A. Rich, contains some very promising results for methylene blue in the treatment of contagious abortion. He states, in part:

"That the only remedies thus far proposed which have been brought to the writer's attention (other than patent medicines of doubtful efficacy) are:

"(a) Carbolic acid; internally.

"(b) Carbolic acid and other antiseptics for vaginal douche.

"(c) Cultures of bacillus abortus (living or dead).

"In the writer's search for a satisfactory remedy several chemicals possessing germicidal powers were used with varying success on the laboratory cultures of the organism, including carbolic acid, salicylic acid, boric acid, methylene blue, mercuric chlorid, thymol, lysol, iodine, iron sulphate, argyrol, ichthyol, formaldehyde, not to speak of many other similar materials. Many showed marked lethal powers; several promised success. One of these, methylene blue, stood out prominently and constantly proved more effective than its fellows (excepting mercuric chlorid which is necessarily out of the question with living animals), especially in the crucial points of rapidity and completeness of destruction of the organism under laboratory conditions. Compared with carbolic acid as a destroyer of the bacillus abortus the writer found methylene blue to be from 20 to 50 times more effective. It was then tried under stable conditions with very satisfactory results, using several cows which reacted to the agglutination test which indicated that they were harboring the abortion organism.

"Its penetrability and activity have long been recognized in bacteriological laboratories. Its use as an internal antiseptic in human medicine is thoroughly established. The highest purity medicinal grade is best adapted to internal use, since it is guaranteed to be free from zinc and arsenic; and only this medicinal grade should be used. Do not confound with methyl blue which is an utterly different thing.

* * * * *

"After determining the specific bactericidal effect of methylene blue upon the abortion organism in the laboratory, the writer tried divers experiments with the chemical upon different cows in the Experiment farm herd, in order to ascertain the effect upon the animals and their products, and to determine the proper dose of the medicine and the best way to administer it.

"The powder was fed in the grain, and upon the silage, and saline solutions thereof were injected under the skin, into the gravid uterus and into the jugular vein. It has been fed in small doses and in mammoth doses, fed occasionally, intermittently, constantly, fed to cows that reacted to the special test and to those which did not, fed to young and to old, to sick and to well, to cows of all breeds and of no breed, to calves, bulls, steers, to human beings. No ill effects whatever have followed the use even of several times the necessary amount continued beyond the necessary length of time. Indeed, methylene blue was fed to 4 healthy cows in exorbitant amounts and for 16 consecutive days. They liked it, they increased in weight, their appetites were, if anything, sharpened, and their milk yields were entirely normal. No stress is laid on these occurrences, no claim is made that this

material is a wonder-working feed or tonic. Reference is made to them simply to emphasize the harmlessness of the remedy. When thus fed in extraordinary amounts, several times what we believe is needed to accomplish the desired end, in a few cases the milk has been slightly tinged. This color does not appear in the butter nor is the taste of the milk altered. No harm can come from the use of such milk, since methylene blue is freely given by medical practitioners as an antiseptic of the human urinary tract. Furthermore, there is no need of giving a dosage sufficient to be manifested in the milk."

It would be well for all who are interested in this question to secure a copy of this bulletin, as it is quite probable that subsequent findings will be published from time to time on the efficacy of methylene blue. Evidence of wide systemic distribution and internal antiseptic properties is set forth in the bulletin by Dr. Rich. Still it is the writer's opinion that our lack of sufficient evidence of its merit, coupled with the fact that according to our present knowledge the Bang bacillus is located in the walls of the uterus and that the blood stream is not a natural habitat for this organism any more than it is for certain other diseases such as tuberculosis; also the fact that there seems to be considerable diversity of opinion among authorities as to whether or not it is possible for any medicinal agent given by the mouth to act as a germicide in the intestinal tract or upon any mucous membrane, or that any such drugs can make the blood more germicidal than it is normally, would not warrant the abandonment of such methods as have proved fairly satisfactory and reliable in the control of the scourge, even if the older methods are more laborious.

The writer has had occasion to give advice where contagious abortion has appeared in several large herds with no uncertain violence. In such cases for several years past it has been our custom to follow out practically the methods here quoted as recommended by the Department of Agriculture in their recent bulletin; and the immediate abatement in all herds and the positive cessation of abortion in others, where in some cases several animals had aborted weekly up to the beginning of the treatment, leaves no question in the writer's mind as to the merit of this method of control. We, however, prefer carbolic acid for both douching and washing the animals. It can be used with safety for douching, beginning with a one-half of one per cent. solution

(one ounce to about six quarts of water). The douche should always be a little warmer than the body temperature, as it cools while passing through the funnel and tube, or hose and pump, whichever is used. It will cause little or no straining, and after a few days can be doubled in strength, and as the parts acquire tolerance it can be used still stronger. Even in a two or a two and one-half per cent. solution we have rarely experienced any burning of the mucous membranes, and very little uneasiness or straining, as compared with other coal tar products. Liquid Creosolis Compositus is gaining favor with some for this work owing to its high germicidal properties it can be used in a very weak solution ($\frac{1}{2}$ per cent.). Further experience may prove that this or some other germicide is preferable to carbolic acid but that question is still an open one at this time, in the writer's opinion. There is no question but that the careful disinfection of the external genitals, and parts which may be reached by the tail, is nearly as important as the douching. The light sponging of the entire cow, stanchion, etc., adds but very little labor and is of much advantage. The washing of the hinder parts automatically takes care of the disinfecting of the stable and drop. Occasionally, burning of the bedding and disinfecting of the mangers (say, once a week) should also be carried out. For this work, again we prefer carbolic acid in a three per cent. solution, owing both to its efficiency and its lack of objection in fine dairies where there is danger of the odor produced by disinfectants affecting the milk.

If methylene blue will control abortion as well as this form of treatment, its simplicity of application over this method would by far offset the additional expense; but the writer would suggest that where valuable animals are concerned, and there is a desire to determine the virtue of methylene blue, with our present limited knowledge of its efficiency, it would perhaps be better to put half of the herd under *each form* of treatment, so that definite conclusions might be drawn from a number of animals treated by the different methods under similar environment.

References: Williams, *Veterinary Obstetrics*, Mohler *Circular* 216 U. S. Dept. of Agr., Rich, *Bulletin* No. 174 Vermont Exp. Station.

ANTHRAX

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Farmers' Institute Lecturer



Anthrax is one of the oldest diseases known to medical science. It is exceedingly dangerous and fatal to animals and to man. Though confined to areas of small extent in America, its ravages have from time to time made frightful devastation in the old countries. In the United States it has been found in about one-half of the states. New York State has suffered several outbreaks in the past few years.

In order to successfully combat this disease we must discuss briefly its specific cause, namely the *bacteria anthracis*, and the ways by which this germ is spread from one animal to another. This micro-organism, which is the cause, and which exists in the blood and tissue of every animal affected with anthrax, is so small that it would take from 1,000 to 2,000 of the germs placed end to end to make the distance of a linear inch. It differs from the germs of many infectious diseases in that it is extremely hardy and resistant to the ordinary disinfectants. If these germs can be confined within the carcass of the victim they soon perish, but if exposed to the air, they form what is known as spores, and these spores are very hard to kill. It is claimed that thirty minutes in boiling water will not always destroy them, and if disinfectants are used they must be very strong. The spores may live for several years in a pasture.

Nearly all animals are susceptible to anthrax. Young animals contract the disease more readily than older ones. Cattle and sheep seldom escape if they have been exposed to sick animals or allowed to run in pastures where dead animals have been improperly buried. Horses and mules contract the disease less readily, and swine and dogs rarely, unless they have been allowed to eat portions of the dead carcass or the discharges from the same.

Birds seldom have anthrax. Man often becomes infected when making post mortem examinations or in handling and burying the carcass of a dead animal. The slightest sore or abrasion of the skin affords ready entrance for the introduction of these germs into the system.

Symptoms: The suddenness of the attack and short duration of the disease is characteristic of most cases. The animal may appear in perfect health at night and be found dead or dying in the morning. In many outbreaks, however, the disease is slower in its progress and may last for several days. There is usually a high fever, from 105 to 108, and a marked decrease in the amount of milk given, if the victim is a milch cow. The animal usually separates itself from the rest of the herd and is often driven along with difficulty. Frequently there is a bloody discharge from the nostrils and anus. This should always arouse suspicion and make one careful about handling the carcass, that he may not contract the disease himself. The symptoms will often vary considerably, depending on the organ most seriously involved. Thus, if the brain is the principal seat of the trouble the animal may be very uneasy and excitable, stamp the ground, bellow, etc. If the lungs are affected the respirations are quickened and labored.

There is practically nothing we can do as regards the treatment of animals that have anthrax. It is simply a matter of prevention and vaccination. The healthy cattle should immediately be separated from the sick ones. If a herd has been exposed to anthrax their temperatures should be taken morning and evening, for an animal usually shows an elevation of temperature before being in a condition to affect other animals. The proper disposal of the dead carcasses and the discharges from the same, such as a nasal discharge or manure, is the essential thing in stamping out an outbreak of anthrax.

On no occasion should animals that have died of anthrax have their hides removed and sold. A person endangers his own life in removing the hide; also the germs are often carried with the hide and in this way the disease is introduced into other localities. Burning is doubtless the safest way to dispose of the carcasses. If they are buried, the grave should be deep and far removed

from running streams or bodies of water of any nature. The carcass should be covered with quicklime (ordinary burned lump lime) and then covered with dirt. The grave should be fenced in for a number of feet so that cattle grazing in the pasture cannot eat the grass near it. When it is desired to remove a dead animal for burial, it should not be dragged on the ground but put on a stoneboat or wagon. Dragging on the ground may scatter the germs for a long distance. The stable in which an animal has died of anthrax should be thoroughly cleaned and disinfected; hay bedding, etc., burned.

MILK FEVER

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Milk fever is becoming a very common disease among dairy cows. Unlike anthrax and tuberculosis, which have existed in the old countries for centuries, milk fever is a comparatively new disease. It was first recognized and described about the beginning of the nineteenth century. Not until the breeder, by selection and environment, changed the conformation of the wild cow of Europe into that wonderful machine called "the modern dairy cow," do we have any evidence that milk fever existed to any marked extent.

Up to 1898 almost every line of treatment had been resorted to without avail, and it was not until the great Dane, H. Schmidt, directed his efforts towards that highly developed structure, the udder, that any marked advancement was made regarding the treatment of this fatal disease.

Milk fever is a disease of the heavy milking breeds. It is very seldom found in poorly kept herds or in scrub cows. Usually the cow is a heavy milker and is either fat, or at least in good thriving condition. Cows during the most active period of life, from the fifth to the tenth year, are far more subject to this disease than are old ones that are past the heavy milking period. It is practically unknown in heifers with their first calf. Cows are usually stricken during the first, second or third day after calving, and occasionally we find a case one or two weeks after parturition. A number of cases have been reported of cows having milk fever practically any time during their full flow of milk. This is seen mostly in pure breeds that give enormous quantities of milk. Cows that have difficulty in calving generally escape this disease.

SYMPTOMS

Milk fever is usually a very easy disease to diagnose. Most dairymen, even before they send for a veterinarian, know that they have a case of milk fever to treat. Though we have an almost

infallible cure, and this disease is so easily distinguishable from other troubles, hundreds of cows die each year in this state through oversight of the dairymen.

Paralysis is the predominating symptom. The glands that secrete the milk are often the first to become paralyzed; hence one of the first symptoms is a sudden and marked decrease in the amount of milk given. A cow may give her full flow at one milking, and at the next only one or two quarts. This sudden de-



FIG. 62.—COW DOWN WITH MILK FEVER.

crease in milk secretion, with the new milch cow, is almost positive proof that milk fever is approaching.

Constipation of the bowels is another symptom. In the majority of cases paralysis of the bowels and bladder occurs while the animal is still able to stand. Many times dairymen have mistaken a case of milk fever for constipation or impaction of the bowels and have given large doses of salts or oils. This fatal mistake of giving medicine by the mouth, has caused the death of thousands of valuable animals.

As the disease progresses, complete paralysis of the entire body results. Almost invariably this is first observed in the hind legs. The animal may at first stamp with her hind feet or act as if they were painful to stand on. If she is allowed to walk, it will be noticed that she does not walk in a natural way. There will be at first a swaying movement of the hind parts, soon followed by a staggering gait, until finally the cow falls down. Sometimes she may rise several times in this partially paralyzed condition, but finally she goes down for good.

The position the patient assumes when down is often very characteristic. She generally lies on the right side with her head turned to the left. Occasionally, in the advanced stages of the disease, the cow may lie flat on one side with her head stretched out as though she were dead.

If the temperature of the animal can be taken, this will aid in diagnosis. At the outset of the disease the temperature may be slightly above normal; however, it seldom goes above 103 degrees. As the disease progresses it gradually drops below normal, and in the later stages often to 97 or 96 degrees. (The normal temperature of a cow usually ranges from 100 to 102½ degrees.)

TREATMENT

In 1898, H. Schmidt conceived the idea that, since milk fever was practically confined to cows of large milking capacity, the udder was the seat of the trouble. He thought the paralysis was caused by the absorption of a poison produced within the udder. He believed that if some agent could be injected into the udder that would counteract the effect of this poison and temporarily decrease the secretion of milk, the question would be solved. A solution of potassium iodide in water seemed admirably adapted for this purpose and was used with very gratifying results. Statistics showed that about 80 per cent. recovered. Then other agents were used, such as saline solutions and even sterile water. These latter agents gave practically the same results as the potassium iodide. A little later atmospheric air was injected into the udder, and this proved far superior to any agent previously used, reports of a number of veterinarians claiming more than 95 per cent. recoveries.

If the services of a competent veterinarian can be obtained the results will be more satisfactory, as he will avoid the complications that sometimes arise. However, if a veterinarian cannot be obtained in a reasonable length of time, or if the cow is in the latter stages of the disease, the dairyman himself should inflate the udder with air. The so-called milk fever apparatus is best adapted for this, but if this cannot be obtained an ordinary bicycle pump may be used.

The procedure is simple, yet great care is required to prevent



FIG. 63.—THREE HOURS AFTER THE INJECTION OF AIR.

inflammation of the udder, which sometimes follows. Have the cow in a clean place with plenty of good straw. Wash the udder, teats, and especially the ends of the teats, with soap and warm water; follow with an antiseptic wash, such as from 3 to 5 per cent. solution of carbolic acid, or 2 or 3 per cent. creolin; boil the milking tube in water ten or fifteen minutes; place a small amount of sterile absorbent cotton in the metal cylinder to remove the particles of dust and germs from the air as it is forced through. (If the milk fever apparatus is used only a few times

a year it is better to sterilize the metal cylinder and use a new piece of cotton each time.) Wash the hands thoroughly with soap and water, followed by an antiseptic wash such as carbolic acid. When everything is ready, again disinfect the milking tube just before it is used, and also each time it is withdrawn from one teat and placed in another, by placing it for one or two minutes in a 5 per cent. solution of carbolic acid water.

When the air is being pumped into the udder it is advisable to have an assistant massage or rub that quarter of the udder to aid the passage of the air into its furthest parts. If the bicycle pump is used great care should be exercised to see that the udder is not overdistended, as that might cause serious troubles. This can be determined by gently tapping the udder with the finger and if it sounds drumlike it is distended enough. It should be sufficiently inflated, however, that when the milking tube is withdrawn some of the air will ooze out. To prevent the air from escaping grasp the teat with the fingers and have an assistant tie a piece of tape or cloth at least half an inch wide, around the teat. As the tape will obstruct the flow of blood to the end of the teat, it should be removed in about three hours. When the tape is removed do not make the mistake of removing any of the milk or air. If this is done, a relapse is almost certain. Many cows will show improvement in from one to two hours after the injection of air. If the animal shows no improvement after four or six hours it is generally advisable to repeat the process.

As a rule it is very dangerous to give large quantities of medicine through the mouth to cows having milk fever. Most cows are unable to swallow, owing to the paralyzed condition of the throat, and anything given by the mouth usually goes directly to the lungs, producing mechanical pneumonia. Many animals have recovered from milk fever but died a few days later from pneumonia, caused by drenching the animal. It is safer not to give any medicine unless so ordered by a veterinarian.

Injections of water into the rectum and the removal of the manure is advisable, especially if the cow does not make a quick recovery. The emptying of the bladder is sometimes necessary with lingering cases. After the cow is up, do not remove any milk for from twelve to twenty-four hours, and only part of it the first two or three milkings.

PREVENTIVES

The fact that we have an almost infallible cure for this disease does not render preventive measures unnecessary; though they are not so important as before the introduction of the modern treatment. Though authorities are not agreed as to the exact cause of milk fever, they are all convinced that the distension of the udder is necessary for recovery. A very plausible argument is that milk fever is caused by a disturbance to the circulation, due to the sudden and excessive amount of blood in the udder at calving time, and therefore, the distension of the udder by potassium iodide, water or air, forces and keeps the excess of blood out of the vessels of the udder until the circulation can adapt itself to its new requirement.

Following along this same line of treatment many dairymen have practically eliminated this disease from their herds, by removing only a part of the milk from the udder the first two or three days after calving, simply easing the udder the same as the calf would do. It is better to remove an equal amount from each quarter. During the first day only a very small amount should be removed, about two pounds every six hours; the second day three or four pounds every six hours; the third day it is usually safe to remove half or three-quarters of the milk at each milking, and after the third day it is generally safe to remove all the milk.

The old idea of starving a cow for two or three weeks before calving is not advisable, though the administration of a dose of salts just a day or two before parturition is to be recommended.

CALF CHOLERA

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SYNONYMS

White scours, calf dysentery; *dysenteria neonatorum*, *diarrhea neonatorum*, *diarrhée des nouveaunés* (French) *Ruhr der Säuglinge* (German).

DEFINITION

An acute, rapidly fatal, infectious and contagious disease affecting newly born animals, characterized by profuse diarrhea and rapid exhaustion.

This disease usually makes itself manifest during the first twenty-four hours after birth, runs a very rapid course, with death occurring usually in from two to three days. The young animal is, therefore, often in critical condition before remedial measures can be applied. Calf cholera is essentially a stable disease, rarely making its appearance among calves reared in the open.

PREDISPOSING CAUSES

While this disease is classed with the infectious and contagious diseases, certain factors seem to favor its development. Among these may be cited, unsanitary condition of stalls and sheds where calves are kept; errors of diet, particularly feeding cooked milk immediately after birth; feeding dirty skim milk, contaminated or spoiled milk; the use of unclean buckets; exposure to damp and cold; improper feeding of the cow before calving;—all of these must be regarded as playing a part in the development of scours. Any condition which may produce derangement of the digestive tract or which will have a debilitating effect upon the young animal, thereby decreasing its power of resistance, has a tendency to favor the rapid multiplication of the various bacterial

organisms normally present in the digestive tract and which do no harm as long as the vitality of the animal is unimpaired, but which become very active, virulent poisons to a young animal in a run-down, weakened condition.

It happens quite frequently, however, that animals become affected immediately after birth and before they have taken any milk from the dam; in fact, before food of any character whatever has been taken into the digestive tract; so it would appear that the infectious agent was either present in the body of the young animal before or at the time of birth or that it gained entrance through some other channel than the mouth, by means of contaminated food.

ETIOLOGY

Bacterial investigations made in recent years by Poels (1899), and Joest (1902) and by Jensen (1893 and 1905) have established that white scours "was in most cases caused by the bacillus coli communis, or by one of its several virulent varieties." It has been demonstrated that colon bacilli from the bodies of calves which have died from white scours, produce the disease in newly born calves in a severe form. When the bacilli are fed to newly born calves, a fatal infection is more easily produced in those animals in which "the organs have not yet performed their functions, than in those in which the stomach and intestines have already been set in activity by the ingestion of food."

SYMPTOMS

Usually, the first symptom is loss of appetite followed shortly by the passage from the rectum of pasty-yellowish faecal matter. The calf seems weak and inclined to lie around and an examination shows coldness of the extremities and very pale, watery mucous membranes. The passage of faecal matter is accompanied by more or less abdominal pain evidenced by straining, restlessness and lowing. Later, the bowel discharges become lighter in color, eventually very thin and white, mixed with curd and sometimes mucus and gas bubbles. These discharges soil the tail and buttocks, causing excoriations of the skin. The young animal now grows rapidly weaker, lies down most of the time, the manure

is passed involuntarily, saliva dribbles from the corners of the mouth and the end usually comes in from one to three days after a short, sharp convulsive struggle.

Those that do not die are usually very unthrifty and it takes a long time to get them back to condition. It is frequently found to be cheaper to destroy those calves which have the disease in a severe form than to attempt to carry them through the disease, in view of the disappointing results following a seeming recovery. They suffer frequently from chronic inflammation of the joints, mouth and respiratory apparatus.

DIFFERENTIAL DIAGNOSIS

True white scours may be distinguished from simple catarrhal inflammation of the stomach and bowels by its enzootic character; by its severe, rapidly fatal course; by the characteristic color of the bowel discharges, and from its occurrence during the first few days of life. In gastro-intestinal catarrh, which is due to improper food or to the fact that the cow has been fed something either prior to or immediately after calving, which upsets the digestion of the calf, we find that the disease runs a much milder course. The bowel discharges are either clay-colored or greenish-yellow and the disease as a rule makes its appearance at a later date; namely, after the calf is three or four days old.

PREVENTION

As soon as the disease is noticed, all affected calves should be immediately separated from the well ones and the stalls and sheds cleaned and disinfected. The following routine may be used to advantage. Clean out all manure, litter, and cobwebs. Remove the litter to the fields or burn it in the barnyard. Wash walls, mangers, stanchions, partitions, feeding buckets, etc., with hot water to which has been added equal parts of crude carbolic and sulphuric acid (commercial) in the proportion of seven ounces to each gallon of water. Thoroughly whitewash interior, using six ounces of chloride of lime to each gallon of lime-wash. Chloride of lime should also be sprinkled freely in the gutters. The lime-wash is best applied hot, using a power sprayer.

If the disease is prevalent in a barn, all pregnant cows should be removed to a clean shed and supplied with plenty of clean litter. The genital organs should be washed out both before and after calving with a disinfectant solution, such as 60 grains of permanganate of potash to each gallon of water or with a 3 per cent. solution of creolin. The external genitals may be washed with the same strength creolin solution used for the injections. As the disease may arise from infection through the umbilicus, the cord should be tied off close to the body by a string dipped in the disinfectant solution and the stump painted with tincture of iodine or Lugol's solution.

In Holland very good results have been obtained from the following procedures recommended by Poels for the prevention of "calves" dysentery.

1. Observances before calving. (a) The tail of the cow is tied up with a string, by which the tuft is secured to a rope placed around the neck, so that the tail rests against the flank. (b) Before the discharge of waters, the hinder parts of the cow, especially the vulva and the udder are carefully cleaned with a sponge dipped in a 3 per cent. creolin solution (two tablespoonfuls of creolin to a gallon of water). (c) The vagina is rinsed out with a solution of 15 grains of sublimate in rather more than a gallon of water, and applied with a specially prepared syringe. (d) The vicinity of the vulva is cleaned with a special brush and a sublimate solution. (e) Care is taken that neither the membranes nor the calf become soiled with the intestinal evacuations.

2. Observances during and after calving. (a) The cow is bedded on clean straw and the calf is caught on a clean linen cloth. (b) The navel string is tied as closely as possible to the trunk with a cord previously boiled or dipped into one of the solutions, letters (c) and (d) named above, and is then cut off close to the seat of ligature. (c) The stump of the navel-string is then washed with a solution of 75 grains of permanganate of potash in a quart of water. (d) The calf is cleansed of adhering mucus, especially at the mouth and nose. (e) A closely woven muzzle is placed on the calf which during the first six or seven days is removed only at the time of drinking. (f) The calf is brought into a clean, quiet shed, free from draughts and fairly

warm. (g) A little of the first milk is drawn from each of the cows' teats, and about two quarts is then milked into a clean vessel. This is given to the calf and the process repeated after a half (or whole) hour. (h) The milk supply for the calf which should always be supplied from its own dam, is, for the first 24 hours, $3\frac{1}{2}$ to $4\frac{1}{2}$ quarts, on the second day up to 6 or 7; on the third to 10 or 11; on the fourth, to 12 or 13; on the fifth, to 12 or 13; and on the sixth day to 17 or 18 quarts.

TREATMENT

At the outset the calf should receive from one to two ounces of castor oil to clean out the intestinal tract. This should be followed by intestinal antiseptics. The ones that have given the best results are the compound sulphocarbolates (sulphocarbolate of calcium-sodium, zinc and copper) in 30 grain dosage, repeated every two or three hours. The food should be of a mucilaginous character, such as linseed tea, thin oatmeal gruel and raw eggs. Lime water and opium may be added to the linseed tea or gruel.

The following mixture is recommended by Friedberger and Fröhner:

Powdered rhubarb root.....	75 grains
Powdered opium	30 grains
Powdered magnes. carbon.....	15 grains

to be given in one dose to a calf with $3\frac{1}{2}$ ounces of camomile tea, or $1\frac{1}{2}$ ounces of whiskey. Tannin and salicylic acid, 30 grains of each in camomile tea once or twice a day for calves is also highly esteemed by many persons. Fifteen drops of creolin in water three times daily is said to give good results.

The indications for treatment are: First, clean out the intestinal tract. Second, disinfect the bowels by the use of a suitable intestinal antiseptic. Third, support the strength of the young animal by easily digested demulcent drinks and stimulants if necessary.

Good hygienic surroundings of both cow and calf are of great importance in controlling an outbreak of this nature. Keep healthy calves from contact with bowel discharges of infected animals and thoroughly disinfect premises after each outbreak.

The annual loss to the agricultural interests of the country from this disease are enormous. Röll reports that out of 3,318 calves, 1,196 became infected, and of this number 1,152 died, a total of 97 per cent. While these figures are probably greatly in excess of our experience with this disease in New York State, white scours is still sufficiently prevalent in certain localities to interfere very seriously with the dairy industry. While the treatment outlined above will bring a fair measure of success, it is easier and cheaper in the long run to adopt a modification of Poel's routine care of cow and calf at the time of parturition, in which better hygienic surroundings of both parent and offspring is of primary importance. By this means the disease may in nearly every case be prevented and the annual losses from this troublesome affection reduced to a minimum.

DAIRY BREEDS OF CATTLE

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Farmers' Institute Conductor



There are between fifteen and twenty different breeds of cattle recognized in America, although some of these have very few representatives and are slightly known. There are four—the Holstein-Friesian, Ayrshire, Jersey and the Guernsey that are universally recognized as special purpose dairy breeds. Then in addition to these, four other minor breeds—the Dutch Belted, the French-Canadian, the Brown Swiss and the Kerry are commonly classed as dairy cattle. The American farmers as a whole have done little in the originating of American breeds. There are two or three types of horses and three or four breeds of swine which are distinctively American, but every breed of cattle entered in the Fair Association premium lists are of European origin save only the little French-Canadian cow from Quebec. Our one American breed, the Holderness, was allowed to pass almost before it was formed—nor is it to be regretted for there is no possible excuse for a further multiplication of breeds. The following is a very brief account of the history and characteristics of our special purpose breeds of dairy cattle.

THE HOLSTEIN-FRIESIAN

The Holstein-Friesian is the black and white cow of Holland and the lower Rhine. Doubtless animals of this breed were imported to the Hudson Valley by the early Dutch settlers nearly three centuries ago. The Holland Land Company brought some over in 1795 and from time to time since, there have been importations. These early importations were from different parts of the country and so confusion of names resulted. In 1872 the first volume of the Holstein Herd Book was published and in 1880 another

organization brought out the Dutch-Friesian Herd Book — thus putting two rival associations in the field. Finally in 1885 these two organizations were merged into one and the name Holstein-Friesian adopted as a compromise — a rather cumbersome and meaningless name. The breed has become very widely distributed throughout the world, but especially in America.

The Holstein has some clearly marked characteristics that set her off from other breeds and for some purposes give her a place all her own. Her size is by far the largest of all the milk breeds, the mature cows if well developed frequently weighing from 1,200 to 1,300 pounds; while bulls of from 1,800 to 2,000 pounds are not uncommon. The color is always black and white but occasionally animals are very nearly pure white and conversely some are nearly black, but the black must not extend to the hoofs. The form in the best specimens is an extreme example of the milk type with angular conformation, great development of the pelvic arch, enormous udder and milk veins and an abdomen that shows wonderful digestive capacity. The head should be lean and the jaw long between the muzzle and the angle of the eye — as distinguished from the triangular shaped head of the Jersey. The withers in cows of pronounced milking tendencies are sometimes very thin and sharp, and this together with the prominent hip bones sometimes gives them an appearance of coarseness. As seen in the stables of good breeders, however, they carry enough flesh to take away this impression. The rump should be long and level, and an unusual width across the hookbones is a distinctive breed characteristic. The hide has rarely the mellowness and elasticity of the Channel Island breeds. The muzzle may be dark or light or mottled with patches of both colors. The horns are usually white tipped with black and ought not to be coarse or spreading. No cow has greater feeding capacity than the Holstein and no calf has greater vigor or can make greater gains in body weight than the Holstein calf. Calves may weigh up to 125 pounds at birth and as veals, reach astonishing weights at four or six weeks. Mature animals while growing and fattening readily give too large a proportion of offal to be desirable for butcher stock.

As a producer of market milk of medium grade, the Holstein cow has no rival. Unfortunately the percentage of fat is too low



FIG. 64.—HOLSTEIN COW, "PONTIAC CLOTHILDE DE KOL 2D"
Record: 7 days—Milk, 464.1 pounds; Butter Fat, 29.766; 80% butter,
37.207. Average per cent. of fat, 4.60.



FIG. 65.—HOLSTEIN BULL, "JOHANNA DE PAULINE 2D'S LAD"
RECORD: 25 Daughters and 5 Proven Sons.

to suit discriminating markets, but her wonderful milk flow, her vigor and feeding capacity, together with the too general practice at shipping stations of receiving at one price all milk that will pass the state standard for fat, has made her by far the most popular cow in the great milk shipping districts. Then too, more than most other breeds, she has always been the working farmer's cow. The Guernsey, especially, and to a less extent the Jersey, has been largely in the hands of wealthy men, but the Holstein is today mainly handled by men who are keeping her strictly as a commercial proposition and she is getting an amount of skillful handling and feeding, and advertising such as no other breed receives.

The Holstein-Friesian Association has a highly developed Advanced Registry record; most records, however, being made for periods of seven days or thirty days rather than a full year — a method not well calculated to determine the true dairy capabilities of a cow. Some wonderful milk and fat records have been made. The world record for seven, thirty and sixty days was recently made by Spring Farm Pontiac Lass who in seven days gave 585 pounds of milk containing 34.31 pounds of fat equivalent to 44.15 pounds of butter. Holstein records are usually spoken of as so many pounds of butter, this butter being calculated as 80 per cent. fat — an incorrect method that makes the results a little too high. There is one daily record of 127 pounds of milk; while yearly records of from 12,000 to 18,000 are not uncommon. It should be remembered that these milk records are made by large animals highly fed and skillfully cared for and that the percentage of fat is relatively low. The Holstein will always be most at home in regions of abundant food supply and deep pastures. She is admittedly at a disadvantage with the smaller breeds on scanty grazing or very hilly lands.

THE AYRSHIRE

The original home of the Ayrshire is in the county of Ayr in Southwestern Scotland, which, by the way, was the land of Robert Burns. Ayr, with the neighboring counties, is described as a good agricultural country with much fine grazing land and with a very moist climate but not severe as compared to the northern United States.



FIG. 66.—AYRSHIRE COW, "AUCHENBRAIN BROWN KATE 4TH 27943,"
ADVANCED REGISTRY NO. 547.
Record: 23,022 Pounds Milk, 1,080 Pounds Butter in One Year.

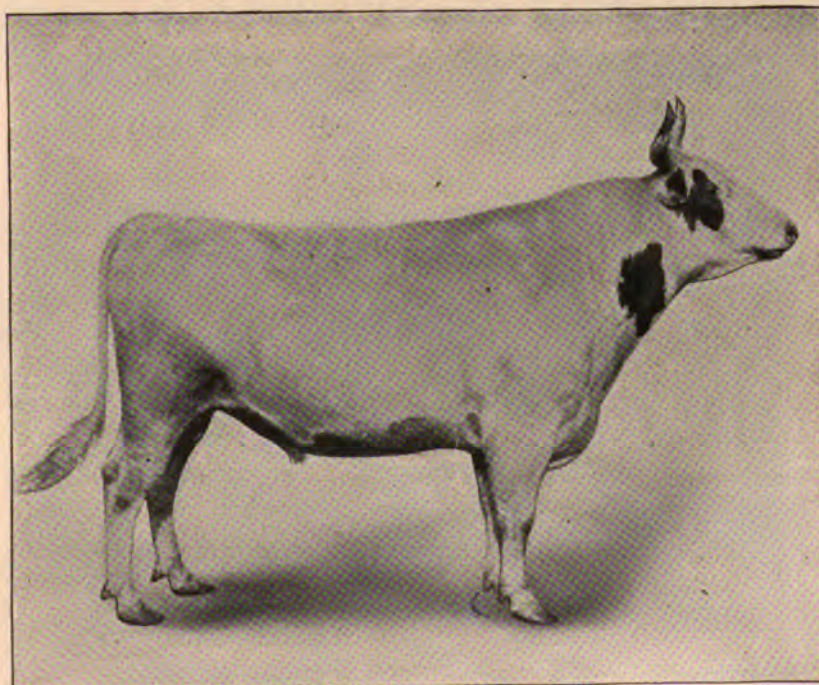


FIG. 67.—AYRSHIRE BULL, "VICTOR HUGO OF AVON, 14409."

The Ayrshire has been a well recognized breed for more than a century but there seems to be no general agreement as to the history of its formation. The foundation was surely the native cattle of that part of Scotland, and nearly one hundred and fifty years ago some specimens of the old Teeswater or early Shorthorns were brought in and mated with the native stock. There is also a tradition that some cattle from the Channel Islands — probably Jerseys — were incorporated in the breed. In fact so far as early accounts go, it would seem that there had been infusions of several English breeds as well as the cattle of Holland. But at any rate, before 1780, the county of Ayr had a distinctive breed of cattle which at that time were usually black and white and were locally famous for abundant milk yield. Later the colors became red or white and brown and white.

The first importations to America were probably made into Canada about 1800 by loyal Scotch emigrants — for the Scotchman has always loved the Ayrshire cow just as he has the Clydesdale horse. The first American Registry Association was established in Massachusetts in 1863, thus antedating the American records of other breeds. Their distribution has become almost world-wide and the Ayrshire has never lacked for ardent admirers, yet the breed has never attained a popularity or number comparably with either the Holstein or the two Channel Island breeds. They are most numerous in Canada, New England and the cheese districts of northern New York.

The Ayrshire possesses some rather marked characteristics. In size, the approved demand is for an animal approximating the weight of the Guernsey — say 1,500 pounds for the mature bull and 1,050 for the aged cow.

In conformation, the Ayrshire is normally less typical of the dairy ideal than the other three breeds. The barrel is round, the ribs well sprung, the legs short and the wedge shape is pronounced but the hind quarters are frequently too beefy to please the man accustomed to the extreme dairy type. They are said by butchers to make very satisfactory carcasses of beef, not carrying the yellow fat of the Channel Island breeds nor the coarseness and offal of the Holstein. It is not too much to say that the udders on the average are the most perfect of any breed, being very broad and symmet-



FIG. 68.—JERSEY COW, "EMINENT'S BESS 209719."
Record (Year): Milk, 18,782 Pounds, 15.6 Ounces (Nearly 24 Quarts Per Day, 365 Days, in Milk); Butter Fat, 962 Pounds, 13.2 Ounces; Average Per Cent. of Butter Fat, 5.126; 85 Per Cent. Butter, 1,132 Pounds, 12 Ounces (Estimated); Age of Cow, 7 Years, 2 Months.



FIG. 69.—JERSEY BULL, "HOOD FARM POGIS 9TH."
Record: 67 Daughters in the Register of Merit, Being the Bull Having the Largest Number.

rical with exceptionally well placed teats and carried well up against the body both forward and behind, but the fault of two small teats is not infrequent. The Ayrshire head is most unmistakable for its proud carriage and the erect black-tipped horns which tend to turn backward. The colors are white, mottled or flecked with red or brown; the proportion of each color is irregular, animals nearly pure white or red or brown being admissible.

The Ayrshire is not typically a butter cow; her milk is higher in fat than the Holstein, but fully 1 per cent. below that of the Channel Island cattle. She has been regarded as peculiarly satisfactory in the cheese districts.

The breed has an Advanced Registry Record, and milk yields exceeding 12,000 pounds are not uncommon.

The breed has a reputation for hardiness and an ability to give profitable returns on rough upland pastures. It is said that in Scotland she is called the "Poor Man's Cow."

The Ayrshire temperament is nervous and the bulls are often said to incline to viciousness more than other breeds.

THE JERSEY

The Jersey takes her name from the island on which she was originated. The Island of Jersey lies only fourteen miles off the coast of France and has less than 29,000 acres of land, yet is said to maintain about 40,000 cattle to say nothing of growing vast amounts of trucking crops for the English markets. It is remarkable that this little group of islands have given the world two of its most widely known breeds of cattle.

Some Jersey or Alderney cows were brought to Pennsylvania as early as 1818. Beginning about 1850 they were imported in considerable numbers and the American Jersey Cattle Club — the present record organization — was founded and began its work in 1868.

Probably it is not too much to say that considering her numbers and her almost world-wide distribution, the Jersey is the most famous and popular of all breeds of cattle. From the standpoint of the artist she is the most beautiful, and more than a hundred years ago an English traveler in Jersey urged their importation in order that they might "ornament the parks of the nobility and gentry."

She has characteristics as well that make her a strictly utility cow and that have given her a place in almost every cowkeeping country of the globe. Bred originally in a mild climate she has demonstrated her fitness to the tropics or the severe Canadian winters. There is no reason for the common idea that she lacks constitution.

Her size, especially in her island home, is the smallest of the four dairy breeds. Under American conditions she tends to become larger and to lose a little of her fawn-like beauty.

Few mature cows weigh below 700, and weights above 1,000 are uncommon. Experienced breeders prefer bulls ranging up to 1,300 and the movement is toward greater size. The color may vary through a wide range, generally known as fawn. Jerseys are never wholly white but white markings may occur. A shade is found that may be called light cream, and also a very dark brown sometimes called mulberry black. Squirrel grey, orange fawn and lemon fawn are other descriptive terms. The preferable color is solid, without definite markings, but lightest along the spine, becoming darker on the belly and legs. The tongue and switch are often black but not necessarily. Always there is a lighter colored ring of hair around the muzzle — a very persistent characteristic even in slight admixtures of Jersey blood.

The head is lean and markedly triangular in shape as compared with the Holstein. The eyes are especially prominent. The horns ought not to be coarse and in some families are very light. The chest is frequently too narrow and the ribs often lack spring. As a rule, the Jersey hide is mellow and elastic but her secretions are less markedly yellow than in the Guernsey. The milk veins are frequently splendidly developed but poor fore udders are very common.

They reach maturity probably earlier than any other breed and yet some of the oldest cows known have been Jerseys. The milk is at least as rich as that of any other breed. The Jersey has not been a satisfactory butchers' animal — largely on account of her small size, and undue proportion of offal. The Jersey Register of Merit accepts lists for seven, fourteen, thirty days and one year. Mature cows must make at least twelve pounds of butter fat in seven days or 360 pounds of fat in one year. The

highest price ever paid at public sale for Jerseys was \$12,500 for a bull and \$7,500 for a cow, both at T. S. Cooper's sales. These prices have been greatly exceeded at public Shorthorn sales. Up to June 1, 1913, there had been registered in the American Jersey Cattle Club, 113,300 bulls and 290,725 cows.

THE GUERNSEY

The motherland of the Guernsey cow is the little islands Guernsey and Alderney in the English channel between France and Britain. Most importations have been made from Guernsey which contains about 13,000 acres of land and maintains about 5,000 cattle — a very narrow home to be the nursery of a world-wide breed. The soil is fertile and the climate very mild and uniform. They have been bred in essential purity for many years and for a long time — centuries it is said — have been protected against infusion of other blood by a law prohibiting the importation of foreign cattle except for slaughter.

It is believed that Richard Harrison of Germantown near Philadelphia imported a pair of cattle from Alderney as early as 1818 and other occasional importations were made, especially after 1865. The date of the establishment of the American Pedigree Registry Record is 1879, and up to June 25, 1913, there had been registered in America 45,339 cows and 25,422 bulls, but popular interest in the breed was of slow growth until after the very favorable record made in the breed test at the Pan-American Exposition in 1901.

In characteristics the Guernsey is most naturally compared with the Jersey although the differences between the two breeds are marked. The Guernseys are coarser and heavier in build, weights of 1,050 pounds for mature bulls and 1,050 for aged cows being score card standards. In heifers before freshening there is often a suggestion of beefiness especially in the thick withers. A tendency toward a sway back and sloping rump is too common. The color may vary through a wide range of yellow or reddish or brownish fawn either solid or more usually with white markings, sometimes very abundant especially on the



FIG. 70.—GUERNSEY COW, "SPOTSWOOD DAISY PEARL 17696."
Largest Continuous Record, 632 Days: 30,079.40 Pounds Milk; 1,536.97
Pounds Butter Fat.



FIG. 71.—GUERNSEY BULL, "IMP. MASHER'S SEQUEL."
Record: 67 Daughters Registered, 43 of Which Are in the Advanced Register;
and 48 Registered Sons, 8 of Which Are in Advanced Register.

under part of the body and legs. Occasionally animals are nearly white.

The color of the muzzle is a fancy point much emphasized by some breeders. It is preferably a yellow buff or flesh color but dark flecks or even black does not indicate impurity of blood or lack of dairy character. The most marked characteristic of the Guernseys is the rich yellow hue of her milk and of the secretions as seen around the eyes, inside the ears and in the very yellow color of the dandruff on the udder and scrotum and at the end of the tail.

The horns are typically yellow at the base and rather short and incurved, and the hoofs amber colored, although many individuals of undoubted pure breeding fail to show these characteristics well developed.

The hide is usually particularly mellow and elastic — on the average excelling all other breeds in this regard.

The temperament of bulls and cows alike is exceptionally mild and gentle — the heritage of centuries of family care and confinement by tethering to very narrow limits.

The strong point of the Guernsey is the production of milk and cream for discriminating markets where the natural high color will enable it to sell at prices in advances of milk lacking this character. Guernsey milk is to be classed as high in fat percentage, being about the same as the Jersey in this regard.

At the beginning of 1912 there were about 257 Guernsey cows with official records exceeding 10,000 pounds of milk and 213 making 500 or more pounds — say 585 pounds of butter fat in a year. There is one official milk record exceeding 18,000 pounds. The requirements for Advanced Registry among Guernseys is that a heifer must produce not less than 250 pounds of fat in a year if calving at two years old or 3,600 pounds of fat in twelve months if a mature cow.

The top price ever paid for a Guernsey at public sale is \$3,200 for a bull and \$2,600 for a cow — not particularly high as compared with record prices for either Holsteins or Jerseys. On the other hand, the average level of prices at present is probably above any other breed. Grade Guernseys are also wanted at prices substantially higher than other breeds.

THE MINOR DAIRY BREEDS

There remain four other breeds of cattle which, while not widely known, are generally classed as special dairy breeds and hence should be briefly mentioned here.

The Kerry is the little cow from western Ireland, developed there by poverty-stricken tenant farmers, and is a most interesting example of how long years of scanty feed and hard conditions have resulted in a dwarf race of cattle. Red Rose, a celebrated



FIG. 72.—THE KERRY COW.

prize-winner of the breed, was only 34 inches high at the withers and weighed about 400 pounds. She was unusually small, however, as cows commonly weigh from 500 to 600 pounds, while mature bulls range from 800 to 1,000. In spite of their diminutive size they are regarded as of true milk type, and Red Rose is claimed by her owners to have made the astonishing record of 10,000 pounds of milk in a year. The color is generally black — sometimes red, and there may be a little white on the scrotum or udder. The head is lean with white horns tipped with black

and the conformation is low with fine bones. The Kerry is at least interesting as an example of an animal moulded by environment.

THE DUTCH BELTED

The Dutch Belted originated in Holland where they are said to have been known for more than 200 years. Specimens of the breed were imported to America as early as 1838, but they have never attained any wide distribution or popularity. It has been the misfortune of the breed to have a color marking so striking and unusual that all other characters have been lost sight of in the perpetuation of this feature.

The size of the Dutch Belted is smaller than the Holstein, being comparable to the Guernsey or Ayrshire. They are black with the one distinguishing and peculiar character of a white belt which may be only a foot wide or may be a broad blanket encircling the body. The belt should be as uniform as possible in width with a clean-cut line of demarkation between the two colors. The belt is a very firmly fixed character and is usually transmitted to the grades. There does not seem to be available many records of production that would justify any high estimate of the breed for dairy purposes.

THE FRENCH CANADIAN

The French Canadian has the unique distinction of being the only recognized breed of American origin, having been developed by the habitants of Quebec Province, Canada. It is believed that they are descended from cattle from France brought to Canada previous to the English occupancy. Like the Kerry they are the product of rather poor agricultural conditions. This has given them hardiness and the ability to make good use of pasture and rough feed. The conformation and sometimes the color is suggestive of the Jersey to whom they are probably related through a common French ancestry. The color may be black or dark fawn or brindle with the ring of lighter color around the muzzle characteristic of Channel Island cattle. In size they are rather dwarfish,

averaging smaller than the Jerseys, but they possess a certain angularity of form denoting the milking type, and such records as are available indicate that many individuals have dairy ability of a high order. They are widely distributed in lower Canada and there are a few herds scattered in the northern states.



FIG. 73.—FRENCH CANADIAN COW.

THE BROWN SWISS

The Brown Swiss has formerly been classed as a general purpose breed, but recently the Brown Swiss Breeders Association has declared that they were to be deemed a special purpose dairy breed.

Their native home is in the mountain valleys of the Alps where they have been carefully bred for many generations.

As a breed they have some rather distinctive characteristics. The size is above medium; the color is a shade of brown which in some cases may be described as mouse color—it is commonly lighter along the back and under the belly. The muzzle has the mealy ring suggestive of the Jersey. The udder is often white, while the hoofs are black and the horns white with black tips.

It must be said that the conformation of the Brown Swiss does not agree with the usual ideal of the dairy type. The body is notably blocky—not to say beefy. The neck is short and thick

with heavy throat latch and dew lap. The legs are short, and the whole appearance is suggestive of vigor and strength.

As might be expected from their home environment, the breed is renowned for hardiness and vitality, and also bears an excellent reputation for docility.

So far as dairy performance is concerned, the number of records are not large, but there are some individuals of marked dairy ability.

IMPROVEMENT OF PASTURES*

J. W. SANBORN, Pittsfield, N. H.



When an ancient Jewish writer desired to picture a state of ideal happiness for the pastoral people to whom he spoke, he likened it to the condition of flocks led into "green pastures." Green pastures, luxuriant and composed of mixed herbage, has long been popularly regarded as supplying the ideal stock feed, both in point of economy and efficiency. Strictly good pastures are but a reminiscence. Time was when the fathers wintered their cattle indifferently and depended on the fresh pastures to make a rapid growth and to fatten quickly and well. Now, good feeders make a better growth in the winter than in the summer, and depend on grain feeding when the better class of beef or the best flow of milk is to be gained and continued.

When a resident of the blue-grass section of Missouri, I was told of pastures that would make their three pounds of growth per day for fattening steers, when supplemented with grain, and more growth was not uncommon, passing 100 pounds per month. The grain added something to the growth, no doubt, but was used more for the purpose of securing quality than quantity. A good Leicestershire pasture in England excels this record. Age has told adversely on the pastures of New England, and Nature, in her efforts to keep up an equilibrium, rotates crops by growths of weeds and brushes. These are accompanied by shade that impairs the growth of grass and injures its quality, for crops in the shade are inferior in palatability and nutritive value. The grasses in an old pasture are apt to be of the inferior sorts low in palatableness, therefore eaten in less quantity and having inferior growing capacity. This trouble is accentuated by the labor essential to

* Address delivered at Farmers' Days, Greenwich, N. Y.

secure the needed bodily requirement. In New Hampshire it will require at least five acres to carry a cow for but a part of the season, and a tedious day's labor to secure a living. This all means low milk flow except in the month of June. Here you have better pastures, yet of reduced capacity and quite below the standard that should be set.

PASTURES A LIMITING FACTOR

The decline of our pastures is one of the important factors that has had to do with the decline of farm values, the departure of the old farm families to other industries and locations, and the general dissatisfaction with agriculture as a vocation in the East. Pastures are a marked illustration of the power of habit and the influence of a name. We are content to accept from pastures a carrying power of a cow half fed on three to six acres during four or five months, said cow giving but a partial fraction of what might be secured if rightly cared for. If we reduce the full carrying power of an acre for a full year, we find that it requires for the average pasture of the East, including New England, ten to twelve acres. The higher type of farming now aimed at asks each acre to carry a cow a full year, exclusive of grain. Under the latter system the cow is highly nourished with little effort and can turn her power to production. On many farms, probably the majority, the carrying capacity of an acre in pasture could be multiplied at least eight to ten times. Granting this, light is thrown upon the fact that our farms are believed to be inadequate to give the income required to maintain the modern farm family in accordance with the standards of living prevailing in our cities, and with the desires of our sons and daughters. Farms should give the standard of living demanded by the times and the culture and opportunities of the age, otherwise farming as an industry will be left to men of inferior ambition.

The trouble with the times in its relation to farming is to be looked for largely in ourselves. The rapid settlement of the West and its flood of cheap food discouraged us. We drew in on tillage crops, the application of capital, labor and plant food, pursued a passive type of farming, increasing our pasture area and permitted these pastures to slide down the plane of fertility without

an effort to maintain them. The effect of this was a narrowing income in an age of expanding expense account. The fixed charges of the farm grew and grew, especially the family expense, until the cost of labor, fertilizers, grain, machinery and buildings, came to equal the gross receipts, and at last failed to leave a margin adequate to give the type of living and the dollars over for a rainy day that farmers felt was their need and due. The remedy for this state of affairs is an enlargement of income. This will come and come readily by deepening the processes of the farm, but more especially by broadening its efforts. Every acre should be laid under the fullest powers of the mind and capital of its owner. No place offers such opportunity for expansion as these passive pasture acres; they at once admit of more than doubling the income, indeed, of tripling and often quadrupling the gross receipts of the farm. Hence it is that I feel that the weak spot of the farm is the pastures.

THE UNOBSERVED OPPORTUNITY FOR IMPROVEMENT OF OUR PASTURES

Probably one of the most important losses due to poor pastures is generally unobserved. Everyone is cognizant of the lessened milk flow that begins in the month of July and continues until the cows come to the barn. Few keep the milk flow up to the normal of good winter conditions or those of June. Pasture appears to be so much cheaper than grain, that there is a reluctance to feed grain, and most farmers hesitate to go to the mows in which is stored the winter's supply of food. There is so far an appearance of saving by this policy, that the practice of enduring fading pastures is a common one rather than the exception.

But during this poor pasture period, ending in late fall months, and of insufficient feed, something else is being lost other than milk. The scales, if used, would show a continuing loss in the weight of the cow. This means much. Not only has a thousand pounds of milk been the forfeit, but this continuing loss is one that must be returned to the cow before she can renew her normal milk flow, which will not be until after calving. The loss of milk flow, accompanying the loss of weight, will be continued, though in a lessening degree, until the full loss of 100 to 150 or

more pounds of weight is restored. The most careful experiments in stock feeding show that under the best conditions it requires ten pounds of food to make a pound of growth. Thus a thousand pounds or more of food must be fed in the barn before the cow has returned to her normal weight and stored up the energy for a full milk flow. Nothing has been saved, then, by short pastures or by withholding food at the barn during short pasturage. On the contrary, the lessened milk flow during the short pasturage has not been made up, nor could it possibly be made up, since the period of drying preceding another calving is attended by a naturally decreasing milk flow. Our poor pastures are at the root of much of the short milk production for which the average herd is credited, and, as stated, it is the chief factor in the low income that has made farming unpopular.

HOW TO IMPROVE PASTURES

There are several methods of pasture improvement that I shall briefly discuss, but I desire to state at the outset that there is one royal road to pursue when it is possible. Every acre of the pasture that can well be made subject to the plow should be forced to give the full return of that field area by being placed in the regular crop rotation. This is my course. It involves, of course, more cost, but this is warranted by the greater productivity and also by the fact that ground that is grazed will not carry as much stock as ground from which field crops are harvested. At the Utah Experiment Station I fed three lots of steers on three equal areas. One lot was grazed, one was cut and fed green in the stable, and the other was cut, dried and fed in the stable. The lot that was grazed required 28 per cent. more area to carry the stock a given time than the other two; or to put it in another form, the section that was cut and fed in the stable had 1,481 pounds of food remaining when the grazed lot was exhausted. This factor may not be the deciding one, but coupled with the greater productivity of a pasture kept under manures in a regular way, it has a marked bearing on the problem. At the end of an eight-year rotation, the pasture is grazed for eight years. At this date, the 8th of May, I have had 43 cows daily on 41 acres since

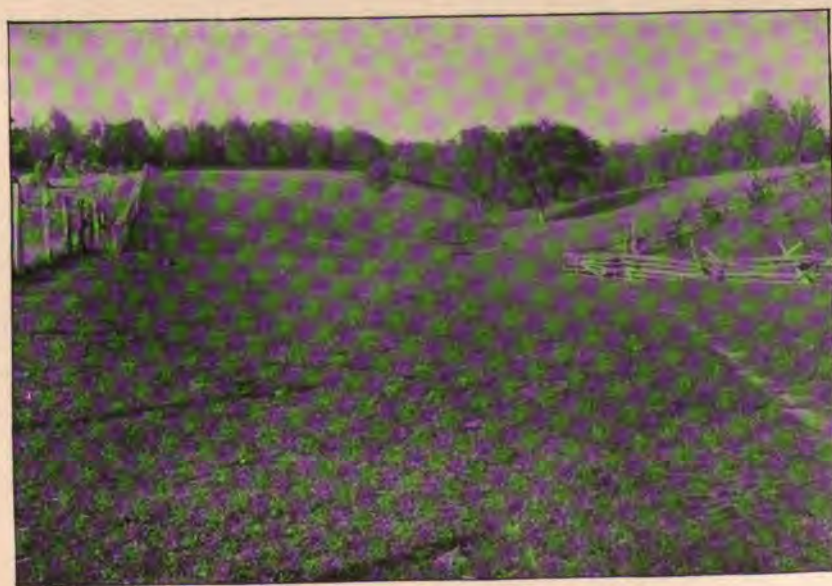


FIG. 74.—SECTIONS OF PERMANENT PASTURE.

the first of the month, and there is now an excess of food on the ground.

Land can be made to carry a cow to the acre for the months of the grazing period, and of course so carry her as to give better results than can be secured by the use of several poor acres for each cow; but a cow to the acre for five or six months is not satisfactory, nor is it the capacity of an acre under cultivation. As a second method, pastures can be treated with yard manure. This method has not been regarded feasible here in the East, since there is not usually enough produced to give the fields adequate fertilization, but they can be made productive by the use of fertilizers and kept so permanently. The continual droppings of stock on pastures, together with the natural decomposition constantly going on in the soil, represent nearly all the fertility taken from them yearly; there is but a small deficit to make good. It is the yearly accumulation of this annual deficit for a long period that has placed our pastures where they are, short in production and in the quality of that produced. With the fathers this loss was less than now, because they fed more for beef and the grazing was accompanied by the offal at all times. The stabling of cows carries more from the pastures than beef animals, and the loss is of a different character.

The carcass of an ox contains, per 1,000 pounds, 17.6 pounds phosphoric acid, but only 1.6 pounds potash or one-tenth that of the phosphoric acid. Milk is .19 per cent. phosphoric acid to .18 per cent. of potash and .53 per cent. of nitrogen. Into milk goes but one-sixth of the nitrogen of the food, one-fourth of the phosphoric acid and one-tenth of the potash. It will be seen that the fertilizing minerals taken from the soil by grazing steers is almost nothing, not more probably than the annual amount supplied by soil decomposition; but there is a continual loss of phosphoric acid, a material less in quantity in the soil by one-half than potash. Old pastures are minus phosphoric acid to a marked degree, and fertilization for them calls for the use of this material. This is why the early use of bone meal on English pastures gave very satisfactory results. I endeavor to use for my pastures a fertilizer containing a little less than one-half the nitrogen which would be applied for field grass, since the droppings afford some nitrogen,

while nature by various processes is providing more of this material than of phosphoric acid. Where cows are pastured, I use some potash, especially for river soils. Distinctively, pasture fertilization should consist of the free use of phosphoric acid, but this material should not come too freely in the form of soluble acid or acid phosphate, since too much of it is not good for grass. On a humous soil, or on an acid soil such as I have, floats are successful and have the merit of decided cheapness. The English and German custom of using basic slag for acid soils is the best practice for securing phosphoric acid; the lime in it tends to sweeten the soil and bring in clover, which is so desirable for pastures. As a source of nitrogen, nitrate of soda (unless it is used as an annual application) should be avoided for it is soon gone. My practice shows that it is better applied twice — in the spring and at mid-season.

The amount of fertilizer to be used to the acre will be determined by the condition of the soil. For improving poor pasture, it is well to use a half ton. On sour soils this had better be mainly basic slag, with 100 pounds sulphate of potash, 200 pounds fine ground tankage and 50 pounds nitrate of soda. What little nitrogen supply is required should come as an annual supply or, in case of the free use of tankage, once in two years. After the first heavy supply, annual applications need be but small in amount, which can be determined best by observation of the individual pasture. Few will care to make yearly use of fertilizers for pastures. On alkaline pastures, bone meal, although this form of phosphoric acid comes high, and muriate of potash may be used instead of basic slag and sulphate of potash.

The partial fertilization of a pasture will compel its full fertilization. Cows will graze close where fertilizers are used. The palatableness of the grass is much improved by fertilization and, better still, the kind of grasses growing will gradually change. I find it to vary under differing methods of fertilizing.

FEEDING STOCK AT PASTURE

Pastures may be improved and finally made rich by feeding from the barn in part or, in case of growing or fatting stock, by feeding while in the pasture. This practice is still in vogue in the rich

blue-grass pastures of Missouri, where for a time I was familiar with beef growing. There I have seen corn constantly before the steers in large troughs from which they fed at pleasure. The literature of pasture feeding with reference to the fertility accruing to pastures is fairly rich. I have not the data with me, but I am familiar with many tests of the relative fertility of pastures on which sheep or beeves have been fed various foods. These trials not only show that pastures on which grain feeding has occurred are richer than those on which it has not been practiced, but that the fertility or carrying capacity for stock is greater after some foods than others. Cottonseed meal, as might be expected, adds more to the pasture than other foods.

The rotation of crops with pasturage, as before noted, makes feeding at the barn compulsory, both for grain and coarse foods. This practice will by patience restore pastures to more than their pristine fertility and carrying capacity, and it has also other recommendations than restoration of fertility. It keeps up the milk flow of the summer season so far as food in plentitude can do so. It is better to give some dry food at the pasture rather than all green food, as it keeps the bowels in better condition and the flow of milk more regular.

MIXED PASTURE GRASSES

It is well known that in England, where are some of the best pastures in the world and the best cared for, it is the custom to use mixed grasses for grazing. English agricultural papers carry advertisements of pasture mixtures, and much is made of the practice of right combinations of pasture varieties. For a century or more, the literature of pasture seeding according to the English system has been advocated, and some of our seedsmen offer mixtures, yet the practice of reseeding pastures and with special mixtures is not common in this country. Those who have tried commended mixtures report that in our climate but a very few varieties are lasting under grazing.

One of the good effects of rotation of field crops with pastures will be found in the fact that for a season we may deal safely with very productive grasses. For permanent pastures I do not hesitate to commend mixtures. In New York State where seeding

is being done for permanent pasture, the following mixture proved a good one:

	Pounds per acre
Red clover	4
Alsike clover	3
White clover	2
Timothy	8
Redtop (re-cleaned)	5
Kentucky blue grass (re-cleaned)	5
Orchard grass	2
Meadow fescue	2

The following pasture mixtures are also recommended:

PASTURE MIXTURES

For Heavy Ground

	Pounds of seed
Kentucky blue grass	25
White clover	10
Perennial rye grass	30
Red plover	10
Red top	25

Sow 35 pounds per acre.

For Lighter Soil

	Pounds of seed
Canada blue grass	5
Red clover	5
Orchard grass	5
Tall oat grass	5
Perennial rye grass	20
Red top	35

Sow 40 to 45 pounds per acre.

It scarcely need be said that a new pasture sward should be grazed the first year, the formation of a mat and the thorough rooting of the grasses should be allowed. It is now being shown that over-grazing is a bad practice, and that it is especially so when the pasture is left closely grazed at the end of the season. We know this with regard to meadows, but somehow think that

GENERAL SUGGESTIONS

pasture grasses are not subject to the same laws of plant life. To a great degree the principle applies to pastures as well as to fields. It is better for the stock to have some material left over for early spring and so have a mixture of the old and new, avoiding in some measure the scouring caused by going at once from dry to green food. Limited use of pastures permits feeding a little later in the fall and a little earlier in the spring. In the western state to which I have alluded, it is common to hold ungrazed or lightly-grazed areas for so-called winter pasture. This enables late and early pasturing.

I am often asked what shall be done with those pastures that are too rocky to plow and reseed, and that, of course, cannot be placed in the rotation with fields. Vegetation to a large and remarkable degree follows the method of fertilization. Some pastures run to June-grass, others to clover, others to timothy and others again to redtop. Bushes and weeds must go as the first requisite to a decent pasture. They not only rob the pasture, but shade it and give poor, watery, sour grasses. Cut and keep cutting them and sow fertilizers liberally. This will induce the growth of grasses and the crowding out of these pests of the pasture. Cows will, as all observers know, nip at the bushes and occasionally at weeds; between the fertilizers, the cow and the scythe, a good pasture will result in time.

LEGUMINOUS CROPS FOR THE DAIRY FARM

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Farm Bureau Agent, Broome County

The dairy farmer generally has several distinct problems to solve. Getting rid of the unprofitable members of the herd through the application of business methods is the one which most readily lends itself to cooperative efforts. The production of roughage in abundance without too great cost, and the economical feeding of the cows that are able to make profitable returns for it, are two very practical problems that must generally be solved for each farm by the operator. The purpose of this article is to point out how a family of cultivated plants, botanically known as the *leguminosae* or *pea family*, are ready to aid the dairy farmer in solving the feeding questions mentioned.

The part played by members of the legume family in aiding the dairy farmer to secure better and cheaper cattle feeds may be stated thus:

1. Legumes always furnish roughage and sometimes concentrates richer in digestible protein than are the fodders produced from grasses and many comparable mill feeds. With more nitrogenous hay or silage at his disposal the feeder can make a ration which will meet the requirements of milk producing animals more perfectly, and at the same time reduce the expense for purchased grain feeds. The seeds of field peas and soy beans when ground and used as concentrates might become very efficient grain feeds if they could be produced cheaply enough.

2. The method of rotating legumes with grasses or other nitrogen-hungry crops is sound agricultural practice because the legume crop increases the amount of available nitrogen in the soil for the crop following it, and has been found to benefit the non-leguminous crop grown in close association with it, as when oats and peas are sown together, or soy beans are planted with corn. This is because under suitable conditions in the soil, the nitrogen-gathering bacteria cause the growth of nodules or tubercles on

the roots of the legumes and free nitrogen from the air is utilized by the crops. The fact that alfalfa and the clovers are deeper rooted than other hay plants leads us to believe that these legumes are able to use the mineral plant foods stored in the subsoil out of reach of many other plants.

3. When fed to live stock, and the manure saved with care, legume fodders have more fertilizing value per ton than most others. The difference in money value of the fertilizing constituents between two very common crops is as follows:

Clover hay	\$8.79 per ton
Timothy hay	5.21 " "

This represents what each of these crops would be worth as fertilizer if applied directly. About 80 per cent. of these values may be recovered from the hay if the manure is saved and handled with care. The difference in fertilizing value between nitrogenous and less nitrogenous feeds appears to affect the quality produced more than the quantity of the manure. It is good practice both for the production of milk and for maintaining the fertility of the farm, to exchange timothy hay or similar fodders for legume hay, at the prices which usually prevail.

REASONS FOR FAILURE WITH LEGUMES

The benefits from growing and feeding legumes are better known among dairymen than are the soil requirements for their production. The need of adequate drainage for successfully growing red clover is fairly well recognized but not universally heeded. As a consequence, every open winter or spring the frost pulls up the red clover plants by thousands and "winter-killing" is held responsible for the loss. Annual legumes escape this damage but may be subject to early frost damage as in the case of beans and cow peas.

The absence of lime in the soil is one of the greatest hindrances to legume culture. There are thousands of acres of land in New York which once grew clover in abundance but now rarely produces it in a paying quantity. The actual lime requirement for building the tissues of the different legumes varies somewhat from alfalfa, the most lime-hungry of the family, down to small white



FIG. 76.—FIRST CUTTING OF ALFALFA HAY ON RIVER BOTTOM LAND FROM SEED SOWN IN SUMMER OF 1912. TOTAL YIELD FROM TWO CUTTINGS IN 1913 WAS THREE TONS PER ACRE. FARM OF L. J. POUNDS, BROOME CO.

clover which needs but small encouragement in lime, and which is found growing feebly in the most run-down pastures. In cases where the soil has had some manure or commercial fertilizers in recent years, it may need lime more than anything else to make clovers flourish again.

The most complete success with legumes is obtained where the soil is friendly to the growth of the root-tubercle bacteria which enable the legume to use free atmospheric nitrogen in its tissues. Where the legume crop has been grown successfully in recent years the soil is likely to be stocked with the necessary bacteria.



FIG. 77.— EFFECT OF STABLE MANURE LEFT IN PILES PREVIOUS TO SEEDING FOR GRASS AND CLOVER.

Where the soil reaction is acid and the need of lime is apparent, the necessary root-tubercle bacteria may be absent or so much weakened as to have lost their usefulness. Where the legume crop has never been grown before and a trial is about to be made, inoculation may be wanting and partial failure result as a consequence. In such cases inoculation ought to be provided by transferring soil from a successful field, or inoculating the seed or soil with a pure culture of the tubercle-forming bacteria, but this will not suffice if the lack of lime is not supplied. A slow process of inoculation is sometimes obtained by sowing a small quantity of



FIG. 78.—SOY BEANS GROWING IN CORN HILLS NEAR CASTLE CREEK,
BROOME CO.



FIG. 79.—EARLY SOY BEANS WHICH GREW TO MATURITY IN THREE MONTHS
ON THE FARM OF EDGAR JONES, BROOME CO.

the seeds of the desired legume repeatedly on the same field in company with other crops, as when alfalfa is sown with timothy to get a sprinkling of plants over a meadow for several years before attempting to sow the normal quantity of alfalfa seed per acre.

Although the legume may have sufficient lime at its disposal and be inoculated with the necessary bacteria for securing nitrogen from the air, its growth may be disappointing because of a lack of phosphoric acid or potash or both. Wood ashes contain both lime and potash. Remarkable and lasting results are often obtained from their use on red clover fields. Basic slag or phosphate powder, a blast furnace by-product, is gaining in favor as a fertilizer for legumes because it contains lime and available phosphorus. Acid phosphate will supply the need of the legume for phosphorus if there be lime enough in the soil. Acid phosphate or raw phosphate rock mixed with barnyard manure is effective in supplying the need of both potash and phosphoric acid. Probably the good results observed from manuring fields to be sown to legumes are due as much to the soluble potash applied in that way as to the humus supplied. The humus may be necessary in getting a successful stand of alfalfa or clovers on certain types of soil.

THE MOST USEFUL LEGUMES ON DAIRY FARMS

Small white clover (*Trifolium repens*) is the most permanent of the clovers for pasture lands. Its low-growing creeping habit of growth enables it to take root at many places along the stem, but it does not root deeply. While not producing much forage for cattle, the combination of small white clover with Kentucky or Canada bluegrass makes one of the most nutritious and permanent turfs for the pasture field.

Alsike or Swedish clover (*Trifolium hybridum*) is a very valuable hay plant on soils where clovers are uncertain of success. It will succeed where the soil is not well drained or supplied with the right amount of lime for red clover. The root system of alsike clover is deeper than that of most grasses. Its decumbent habit of growth makes it almost necessary to sow timothy or red clover with it in order to support it in a meadow. It does not produce much second growth after being cut for hay but may persist for



FIG. 80.—TWO ROWS OF MEDIUM GREEN SOY BEANS, GROWN BETWEEN CORN AND COMMON FIELD BEANS.



FIG. 81.—RYE AND VETCH ON THE FARM OF E. P. BROTZMAN, TOWN OF CHENANGO, BROOME CO.

from three to five years from seed sowing. As the seed is very small, from four to six pounds per acre mixed with a larger amount of timothy or red clover will produce a stand of plants.

Medium red clover (*Trifolium pratense*) is the best known of the clover family throughout the northern states from Maine to Washington. For several years there has been a general complaint of failure with this crop on soils outside the limestone regions. Where the drainage is adequate, the soil supplied with at least enough lime to make the reaction neutral, and potash is within reach of the roots in sufficient quantities, one may sow red clover with assurance of success. The clover root-borer is the worst enemy of the plant in the East. It usually ends the life of the plant after the second season of growth. This fact makes a short rotation most desirable where clover is depended on for hay. Red clover and timothy combined make the most popular and practical hay crop. Mainly clover is cut the first year and the second season produces a better crop of timothy with less clover or none at all. Timothy hay is a valuable cash crop on a moderately stocked dairy farm, but every meadow should have some clovers sown in it at the start.

Mammoth red clover is a variety of the same species. It differs from the medium red in having coarser, longer stems, and comes to maturity later in the season. Because it produces a larger growth of humus-making material it is preferred to the medium variety for soil improvement.

Alfalfa (*Medica sativa*) is a long-lived, deep-rooted plant of very high feeding value. Under favorable conditions of soil and climate it becomes well nigh permanent in meadows. Its greatest usefulness is realized in rotations of from five to seven years in which corn or potatoes are planted on the broken alfalfa sod. In New York two or three crops of hay per year can be harvested according to the age of the plants and the available soil moisture. The protein content of alfalfa hay is higher than that found in many other fodders. The digestibility of the nutrients in alfalfa is also very good. When judiciously combined with other feeds it saves grain and maintains the milk flow or promotes the growth of young animals. Although of greatest value for hay, alfalfa is often used as a soiling crop and even for silage.

No other legume in this discussion is so dependent on having an abundant supply of carbonate of lime in the soil. Not only should the soil be sweetened where alfalfa is sown, but plenty of lime carbonate should be within reach of the roots so that the needs of the alfalfa tissues for lime may be supplied as the crop develops. Alfalfa is also very sensitive to lack of soil drainage. Only fields with good drainage in the subsoils can be depended on to grow the crop with certainty. Tile drains are often needed to supply proper drainage for it.

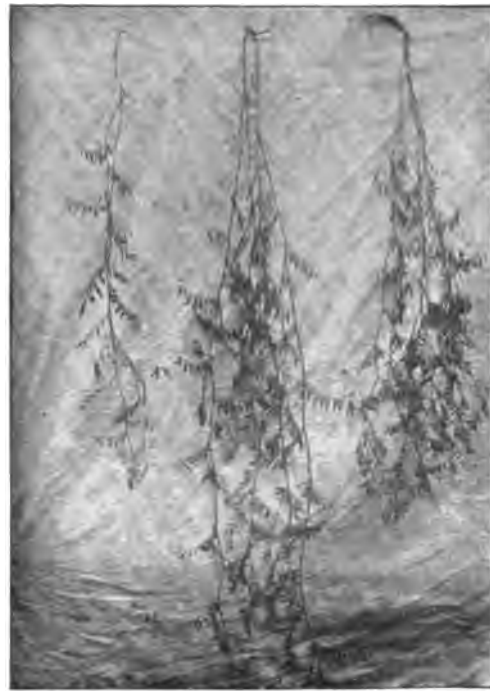


FIG. 82.—VETCH PLANTS FROM THE FARM OF
E. P. BROTZMAN, TOWN OF CHENANGO,
BROOME CO.

There is some evidence that phosphatic fertilizers are profitable on alfalfa. There is more evidence that barnyard manure is essential in establishing the crop, especially where it has never been grown. Inoculation for alfalfa is always wise in case the field has never been seeded with it before. Both seed and soil inoculations are successful.

In most parts of the State common strains of alfalfa will prove hardy, but where the winters are severe some attention must be paid to securing seed of hardier varieties. Of these the Grimm is probably best known.

White sweet clover (*Melilotus alba*) is a biennial plant which resembles alfalfa during its first year of growth. It stores food in a strong, fleshy root the first year. The following year it sends up vigorous branching stems which blossom and bear much seed if not cut down more than once during the season. This crop needs lime fully as much as alfalfa. It will grow in soil robbed of humus better than alfalfa and is inoculated with the same bacteria. It is not a desirable forage crop where alfalfa can be grown successfully, but may have some value for hay if cut while tender. It analyzes well in nutrients.

Hairy vetch (*Vicia villosa*) is another biennial plant. It has a very trailing habit of growth and requires the support of rye, oats or some other plant with stiff stems in order to be useful for hay or soiling. Vetch fodder is rich in protein. When properly inoculated and supplied with lime it increases the available nitrates in the soil. Poor quality of seed and too late sowing are responsible for many of the failures reported with this plant.

Canada field peas (*Pisum sativum*). There are a number of varieties of these peas grown in the northern states. As a soiling crop in combination with oats they are popular. The quality of the fodder is very nutritious. When oats and peas are made into hay, both the yield and quality will compare well with red clovers. The short season required to grow the crop is a decided advantage where the fields must be broken on account of failure in clover meadows. For silage, oats and peas are a successful crop, although it is more economical for many dairymen to store the hay. Peas are soil improvers if inoculated, and the soils of New York are generally supplied with some of the necessary bacteria.

Soy beans (*Glycine hispida*) are of many varieties, ranging from early to late in season of maturity. These varieties differ also in habits of growth, and in the color of seeds. The soy bean is an annual with a limited root system and usually an upright, bushy habit of growth. When properly inoculated with its own root-tubercle bacteria, it is a good nitrogen gatherer and will leave

appreciable amounts of available nitrogen in the soil for the succeeding crops. There is some evidence that soy beans grown with corn in the hills or drill rows is beneficial to the growth of the corn. A few growers have been very successful with the mixed crop. It may be said that soy beans will thrive wherever the conditions are good for the growth of corn. The beans may be grown in separate fields and mixed with the corn at the cutting-box in the proportion of not more than one-fourth bean fodder for best results. This is the surest way of enriching the silage with soy beans.

Early maturing varieties of soy beans may be grown for their ripe beans to be ground and used as concentrated feed, equal in nutrients to oil meal. For hay, those varieties which grow slender and rather tall are to be preferred. Maturity is not necessary for hay purposes. The best silage varieties grow to a height of three or four feet and branch freely. They need not be any riper than the corn fodder. For soiling, a succession of varieties which do not mature at the same dates will be found desirable.

The culture of soy beans for grain or for silage is very similar to that practiced with common field beans. To grow hay it is best to sow as much as two bushels of seed per acre with a grain drill, using every hoe. Phosphatic fertilizers are considered best adapted to the plant. Inoculation of the seed is comparatively easy with pure commercial cultures or those furnished by the United States Department of Agriculture. The soil transfer method is also used.

Crimson clover and cowpeas are two legumes which are adapted to a very limited use in New York. It rarely pays to sow them north of New Jersey. The first is an annual which is summer or autumn sown and completes its growth early the following spring. While it is a very valuable soil improver and may be used for soiling, it is not a good hay plant, because of the irritating blossom heads in the animal stomach. Cowpeas are a very tender annual and adapted to warm soils and locations free from summer frosts. Hay can be made from them where they will succeed.

SOILING, SUMMER AND WINTER

F. S. PEER, Ithaca, N. Y.

Author of Soiling Ensilage and Stable Construction

The most important question before American farmers today is how to redeem the fertility of the soil. There are at least two ways it can be done, either by buying it back in the form of commercial fertilizers or growing it back by a system of farming that makes the land richer with each succeeding crop.

Men with capital are buying impoverished farms at \$100 to \$150 per acre and are finding that the average yield of farm crops can not be grown on such land except at a loss. Some of them have been smart enough to see that by spending \$50 to \$60 per acre in commercial plant food that they have been able to increase the production of the land so that it pays a handsome per cent. profit on the increased cost where formerly it was worked at a loss.

On land costing \$100 per acre that produces only twenty bushels of wheat per acre the crop is undoubtedly grown at a loss, but if the same acres can be made to produce forty bushels per acre at an additional cost of \$50 to \$100 per acre for plant food, the additional twenty bushels per acre should return a profit of 10 to 15 per cent. on land costing \$150 to \$200 per acre. When the fertility necessary to grow a crop with profit has been returned to the soil, if it is afterwards properly stocked, the fertility may be maintained by the additional number of farm stock the farm is able to carry. This fact is apparent to everyone and men of business experience in other lines are not long in making the discovery and acting accordingly. This simply means that farming on a fertile soil is a profitable business; whereas farming on an exhausted soil is unremitting toil. For men with the capital to invest this is perhaps the quickest if not the best way of turning a losing proposition to a paying one, but many American farmers are so deeply in debt, that they have not that extra \$50 to \$100 or any part of it perhaps to invest in soil fertility.

Since the government has about come to the end of its profitable disposition of the public domain these conditions have been somewhat improved. The day when the government at Washington could set up 50,000 emigrants and others in the farming business yearly with 160 acres of virgin soil, has about come to an end although in their madness to give farms away they have been spending millions in irrigating schemes in order to make it go. In spite of all that, we seem to have come to the return swing of the pendulum and it appears as if the day was dawning when agriculture, as a business, could once more hold up its head and be made to pay. When that day comes, and it is coming fast, farmers' sons and daughters and city gentlemen's sons and daughters with capital will return to the farm.

I will digress a few lines further, the better to show our real position and the necessity of winning back the fertility of the soil without further delay.

Between the years 1880 and 1890 the farmers' lands of the state of New York depreciated \$44,000,000 and in the state of Ohio over \$100,000,000, other eastern states in like proportions all in spite of the great increase in population. That was the state of agricultural decay in the eastern states and had been going steadily on for at least 20 years prior to 1890. The fertility of the soil was sold by the bushel and by the ton and delivered to market in the hope of tiding matters over until times were better. This in a word was the general state of the decay of agriculture in the eastern states principally as above stated by the shortsighted profligate land policy of our own government. The pendulum of oppression seemed to reach its furthest limit about 1905 to 1907.

The year 1913 has come with a brightening sky and money to be made in farming if we only had the capital in the bank or the fertility in the soil.

I have shown how men with capital properly invested in plant food may succeed. We now come to the question of all questions: "How are the ninety odd farmers out of the hundred who are deeply in debt going to succeed without capital?" I beg to submit the following solution — try soiling. This is not theory. I

advise it because it did for me and has done and is doing for others who have profited by my experience, just what so many farmers now require to turn a losing proposition and unremitting toil to one of success and profit.

Perhaps I can not do better than to state as briefly as possible my personal experience.

In the early seventies I inherited a farm in Wayne county, N. Y. of 127 acres (100 acres of tillable land). This farm had been worked on shares for fifty years. It was naturally a productive farm, but latterly it had been "cropped to death." The first wheat crop gave but fifteen bushels per acre and was grown, harvested and delivered to market at a loss of \$1.695 per acre. There were sixteen acres in the field. I did a little figuring and found that at the same rate for expenses, if the field had produced forty bushels per acre there would have been a net profit of \$23.05 per acre or a total profit of \$368.80 against a loss of \$27.12 for the sixteen acres. When one considers that the average yield of wheat in the United States is only about thirteen bushels per acre and sees that there must be hundreds of thousands of acres producing even less than this to bring the average so low, one need not be at a loss to know why such farming does not pay. This low yield of wheat per acre gives an idea of the general condition of the farming lands as to fertility.

The former owner of the farm was able to get along on the income from government bonds laid aside during the war when wheat brought as high as \$2 per bushel. This farm when I took possession carried but six head of cattle and four horses. No wonder the soil was becoming impoverished. It required about sixty acres of hay and pasture to support them summer and winter besides what straw and cornstalks they consumed, that was grown on the other forty acres which was devoted to wheat, oats, barley, corn and potatoes.

The fences about the fields were so broken down and the cattle became so breachy that by the middle of June we were obliged to shut them in the barnyard and feed them on clover cut green in the field. It was the only alternative. Farm work was pressing and no material at hand for repairing fences. This was the beginning of what proved to be a blessing in disguise.

For a few days the cattle seemed restless and homesick for the fields. We began feeding them in open racks in the yard, but this proved unsatisfactory. They drove each other about and hooked one another so badly that we finally shut them in their winter stanchions. As soon, however, as they become thoroughly filled, they were both reconciled and peaceable; there is nothing like a full stomach to make a cow quiet and contented.

I was sorry for them for it seemed so contrary to orthodox farming that if it had been possible I would have relented and turned them out. Fortunately there was no other way.

Presently, to my surprise, they began to increase in flow of milk and to thrive beyond all expectation. I was greatly surprised also at the very small piece of ground required daily to support them and in far better condition than at pasture. I was also surprised to find the extra labor was nominally nothing compared with the improved condition of the cattle and the increase in milk which I imagined was in itself sufficient to pay cost of cutting the clover and delivering it to the barn. Another thing, the best of all, we were collecting a fine lot of stable manure under cover. My faith in the redemption of the old farm was in barnyard manure from the first, but how to get it? We were four miles from town, so buying and hauling manure from there was out of the question.

A little later we darkened the windows to exclude the flies, kept them in their winter stalls day times and turned them out in a small grass paddock at night. Why not keep twelve cows instead of six; make twice as much manure in quantity, and make a business of soiling them altogether? It seemed just the thing to do and I did it. I turned the whole question to soiling and I found the system quite able to carry it and much besides. Soiling also settled the fence question.

Thus began what proved to be the most successful, most economical method of feeding farm stock, at the same time the most saving method of obtaining plant food (fertility) for the growing crops. It settled several other questions, especially how to obtain a full flow of milk from our cows during the entire season independent of parched pastures, hot sun and flies.

Soiling enables the farmer to keep five or six animals from the same ground that by the pasturing system is required to support one. If a farm of 100 acres will support twenty head of cattle a year by pasture in summer and hay in winter it will as easily support 100 head by soiling in summer, with hay and ensilage in winter. In other words, by adopting the soiling system, the capacity of a 100-acre farm is increased to a 500-acre farm without buying more land. The saving in land alone is so distinct, so undeniable that there seems no economy in doing any other way.

Five head of stock supported on land formerly devoted to one means five times as much barnyard manure in quantity to start with. Manure made properly, handled under the soiling system is probably twice as valuable as that dropped at pasture, which means it is equal to about ten times as much as formerly.

Again the soiling system furnishes food in abundance and with the least possible effort on the part of the animals throughout the entire season, independent of parched pastures and ordinary drought.

Our farm animals are but machines (so many factories). Grass, forage and grain are the raw material which they convert into a product of greater value. It requires 2 per cent. of the live weight of an animal per day to heat the blood and supply the waste. This much an animal must eat before it can produce a profit to the owner. The economy in feeding farm stock therefore is not in seeing how little but how much they can be induced to eat (consistent with health) above the 2 per cent. they require to maintain themselves.

The same is true with our forage plants; they, like animals, live, feed, grow and die. It is only by feeding them liberally that we can expect them to produce bountifully. Our acres are also factories for converting plant food of small value, like barnyard manure, into grasses, forage and grain of greater value. The profit of an acre depends not on how little plant food we can get along with but how much we can induce our growing crops to consume consistent with economy. The soiling system is in perfect harmony with these ideas and systems of farming. I might also mention the saving of food — cattle will readily eat in their stalls much that they trample, waste and destroy in the fields where they seek only the choicest.

By keeping cattle in darkened, well-ventilated stables day times and only turning them out nights, they are protected from the exhausting heat of the sun and the annoyance of flies that in pasture will drive them nearly to distraction. The value of the system in this respect can not be estimated in dollars and cents.

My claim for the system is that it is the best and most economical method of building up a run down farm, and the advantage of the system is that it is practically accomplished without money; at least there is no way one can accomplish so much with such a small outlay. This brings us to the question of extra labor; when we come to put it to the test it turns out to be mostly scarecrow. No where or in no form of farm labor that I have ever met with can a person accomplish so much for so little.

Now a word as to the practical results in my own case. Hundreds of farmers who have followed my advice have accomplished even better results.

On the 100 acres (arable land) in the farm above referred to, I found ten to twelve head of stock required at hay and pasture sixty acres for their forage for the year; this left me about forty acres for marketable crops. Three years after adopting a strict soiling system the same farm was carrying 13 full-grown cows, 5 yearlings, 4 calves, 4 horses, 2 colts, 70 sheep and lambs and 6 brood sows. Estimating 900 to 1,000 pounds for a full-grown animal the above was equivalent to about 36 head of full-grown farm stock. These 36 head were supported from the product of 30 acres of land and this was about the average for the next three years. This left me about seventy acres for marketable crops. It will be seen that while I was keeping 36 head of cattle by soiling and ensilage on about half of the land required for 12 head by hay and pasture, I had at the same time nearly doubled the average on the same farm for marketable crops.

These animals were fed as much straw as they would eat, grown on the land devoted to marketable crops and their grain rations and bedding as well. This was also the case with the 12 head on the sixty acres. The four horses were fed soiling crops summers and were wintered principally on cut straw, cornstalks and grain. Most of the land devoted to soiling was made to produce two crops per year, namely, all that was sown the fall previous to rye and

some of the early spring crops like barley, oats and peas were followed with corn, millet, etc., the same season. The first wheat crop on the old farm was but 15 bushels per acre in 1875. The last one on the same field averaged $30\frac{1}{8}$ bushels per acre. No commercial fertilizer was used in the meantime.

There is no question but that on any good farm of 150 acres capable of producing 140 bushels of wheat per acre, after a few years' experience one could easily support equal to 100 head of full-grown animals from 100 acres and have 50 acres left to grow the necessary grain and straw to provide their entire maintenance in a healthy, thriving condition. This does not take into account the forced feeding of grain rations for dairy cows, and leaves ten acres for roads, buildings, gardens, etc. Where some fail in attempting to soil their cattle, is that they only try partial soiling, in which case they have about all the extra labor and only half of the benefits. Another stumbling block is that they do not feed often enough per day and sometimes find dairy cows shrinking in milk with a rack full of green forage before them. The trouble is not with the system of soiling but the system of feeding. When a cow is given more green forage at a feeding than she can consume, and breathes upon what is left for a time, she will only eat it when hunger compels her to do so. No doubt many a man has given up soiling because the cows shrunk in milk for this very reason. They should be fed soiling crops three times per day and their mangers cleaned out; if any is left between feedings the hogs will be very pleased to get it.

Of soiling crops, rye, oats, peas, barley, clover, alfalfa, sweet corn (the rye in the fall), the spring and summer crops should be sown in succession estimating one-half to three-fourths of a square rod per day for each full grown animal, and sow each week enough for a liberal week's feeding. There are 160 square rods in an acre which at one-half a square rod per day makes nearly a year's feeding from one acre. If the land is in a high state of cultivation one-fourth of a square rod is all a cow can possibly be induced to eat in a day; this means nearly two years' feeding from an acre of land by soiling from it instead of five acres for one cow by hay and pasture. Twenty tons of silage per acre will also feed two cows for a year except for grain. The 100-acre

farm had about 12 acres of soiling crops, 8 of silage, 4 of grass and 5 of pasture, the latter an old orchard for sheep and young things, with soiling crops as the principal source of forage supply. As to feeding ensilage in the summer in place of soiling crops, I prefer the latter with the ensilage to help out in case of need.

This, in short, was my experience on the old farm which was forced upon me.

The adoption of strict soiling will not only enrich the farm in a sure and economical way but each succeeding crop leaves the soil in better condition for the ensuing crop than it was before that crop was taken. That is farming. More stock means more plant food. More plant food means more forage and grain. More forage and grain means more stock and so on. This to my way of thinking is the very art and science of agriculture. The lesson soiling will teach any one capable of being taught is, how to redeem the fertility of the soil by growing it back into the soil instead of buying it back.

I believe that this without question is the most important lesson within the whole realm of agriculture today and one that must be learned by every one before he can possibly hope to succeed at farming. This is being realized now as never before. I said the same thing over and over again in a little work on soiling way back in 1881, and for five years before that when going about the country to farmers' clubs, preaching soiling, later ensilage, which enabled me to continue the system through the winter. In fact my first work on soiling was called "Soiling, Summer and Winter" or "The Economy in Feeding Farm Stock," already referred to.

Anyone can live on the fertility of the virgin soil but that is not farming, and that is what the great majority of government-made farmers have been doing for the last fifty years. These are the men who are now going to Canada by the hundreds of thousands to take another gift from the Canadian government. One of them is reported to have said, "You can't tell me anything about farming, I've worn out two good farms already."

By beginning with the soiling system for summer feeding one will soon find he is able to keep more stock summers than during the winter. By that time he should have made money enough to

build a silo, then he will be enabled to go on soiling winters as well as summers,—that is just what soiling did for me. It is the most practical lesson in agriculture I ever received. There is no system of farm management to compare with it for building up a run down farm without money and practically without price. Nothing can compare with it for a practical lesson in farming and the science of agriculture.

I freely acknowledge that I owe whatever success I attained as a farmer to soiling; I also owe to the same source whatever reputation I made for myself as a breeder of farm stock, for it was only by adopting the former that the latter became possible.

Again I say to any man who would build up the fertility of his soil in the surest, most economical way, and who aspire to the honorable distinction of being a real farmer, to try soiling and after that with the first money he can make or borrow to build a cement manure receptacle. I consider that in no possible way can a farmer invest to better advantage. Next he should build a silo and that means the soiling system summer and winter.

THE SILO — AN ECONOMICAL FACTOR IN DAIRY FEEDING

EDWARD VAN ALSTYNE, Kinderhook, N. Y.

Director of Farmers' Institutes

Before one becomes interested in specific directions for the accomplishment of any line of work, he must realize that such work is necessary. Therefore, I shall first give three reasons why it is worth while for a dairyman to build, to grow corn for, and feed from a silo — all economic ones. Afterward, I shall give some suggestions as to the corn, the structure, its filling, and feeding the contents. In all, I shall be general rather than to attempt to give specific scientific details, which would be impossible in so brief a treatise, since I desire to cover a wide field.

The silo is economical because by its use we utilize the entire corn plant at its best. It provides a succulent food in the cheapest possible way at a season when such food is difficult to obtain. It is the cheapest way in which the corn crop can be harvested.

First.—Analysis shows that one-half of the feeding value of the corn stalk is contained in the portion below the ear. Even a casual examination of the butt of the stalk when green, will witness to its juiciness as compared with the leaves and tips. When this is dried, the starch and sugar, which makes it of high food value, is turned into woody fibre largely indigestible. Hence, what was once the best is rejected by the animal and if uncut must be thrown out — to try the Christianity of the man who handles the manure. When put into the silo all of this is readily eaten. This difference gave a neighbor who fed from the silo for the first time 15 tons more of hay to sell in the spring, which quantity he had formerly needed for forage.

Second.—Every farmer knows the value of pasture grass as food for all animals, owing chiefly to its succulence. To prove this, one may take the clippings from a lawn and immediately feed them to a cow. She will consume from 80 to 100 pounds daily, and analysis shows them to be 90 per cent. water. Yet the cow will thrive if she has all she needs. Dry most of the water from

these clippings — when about one-quarter of the weight remains — and give the cow all she will eat with abundant water. It will not be long before she will show the effects both in loss of milk and flesh.

The same is true of the corn stalk. Properly grown and ensiled it will contain from 70 to 80 per cent. of water and from 6 to 10 per cent. of crude fibre. Dry it and the water is reduced one-half, but the fibre has increased three times.

For an animal to do its best, succulence must be provided. In winter such must come from roots or silage. The former are expensive; the latter cheap. Why dry the water from the corn? I have proved beyond question that I can make as much flesh or milk from ensiled stalks — not counting the grain — as I can from the same stalks fed dry and well housed, and two pounds of grain a day extra per animal.

Third.—The first two propositions will more readily be granted than the third — the objection that it costs too much to put the corn in the silo. Once the writer thought so, but became satisfied that the two reasons first given would overbalance the last. Today he knows that there is no way the entire crop can be so cheaply handled as through the silo after the cost of the structure has been considered. Many can testify that the saving of fodder and grain in product has paid for the cost of the structure the first year.

We now take into account both grain and stalk. It has been proved beyond a doubt that the corn in the silo is equally as valuable for food as when it is ground into meal. Let one illustration suffice. At the Pan American "Model Dairy" fifty cows were on test for six months to determine the value of product over cost of production, and the men in charge economized in every way to save on the cost of rations. The cows were fed silage containing a goodly amount of corn and at the outset most or all were fed some cornmeal. It was noticeable that after a short time they voluntarily ceased to feed the latter as the milk returns showed that it did not pay to feed it in addition to the corn on the silage; and so long as the silage lasted no more corn meal was fed except occasionally to a cow thin in flesh and to the Shorthorns from which they were endeavoring to make milk and beef at the same time.

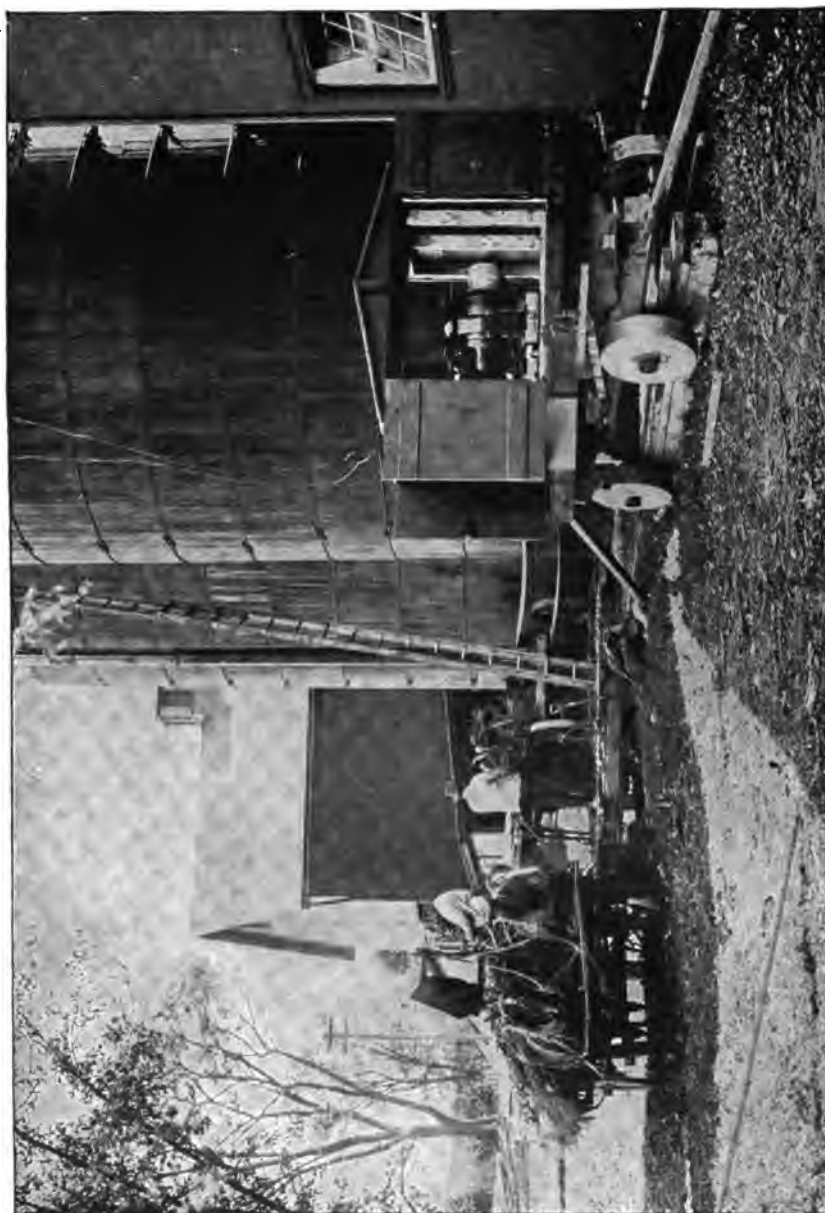


FIG. 83.—FILLING THE SILO.

It will cost at least one-tenth of the value of the corn to husk it; another tenth to grind it — if an honest miller does the job; which is one-fifth of the value spent to put the meal back with the corn stalks on which it grew, not one whit better than when it had been cooked in the silo. Every handling of the plant adds to the expense. When it can be cut, placed on the wagon and run through a cutter into the silo ready to feed, the cost is concentrated in a brief time and is realized; when it is spread over several months the additional cost is not apprehended.

The best proof of the truth of all these points is the increase of silos in the hands of poor men over the entire state. The silo is a necessity to the poor man. He must produce as cheaply as possible; only the rich can afford to waste the most valuable part of his fodder. Be without cheap succulence and be out unnecessarily for labor.

THE BEST CORN FOR THE SILO

In a general way, the best corn is that which will give the largest growth of *mature* stalks and grain in the locality where it is grown. While silage is pre-eminently a forage crop and bulk is important, it does not pay to obtain this at the expense of quality. It has been thoroughly demonstrated that the highest amount of food value from an acre of corn is obtained when the plants are far enough apart to permit the sun to develop, through the green leaf, the maximum amount of sugar and starch, and mature the ear to the glazing state. Then is the ideal time to silo it. In most places some variety of dent corn will serve, but where the corn season is short, an early maturing flint — necessarily smaller — will be better. I have found that cattle require a less quantity to satisfy them of thoroughly matured corn than of that only partially so.

Ordinarily, it is best to plant in drills three to three and one-half feet apart with stalks about eight inches in the row. On land very weedy, three feet each way, three stalks in a hill, will enable one to combat the weeds to better advantage and practically the same amount of corn will be obtained although at greater expense in planting, and the harvester will not work quite so well as when there is practically a continuous row.

Whether many or few ears are desirable is a much debated question. Certainly one should strive to put all the corn his animals need in the silo. How much this will be, depends on whether he is feeding for milk or flesh and whether the milk cows are fat or lean. For the ordinary milking dairy I have found from seventy-five to one hundred bushels of ears to each ten tons of stalks a desirable amount, which the cows will digest and assimilate. It does not pay to put in more and have it passed undigested into the gutter.

MANNER OF FILLING

Whether the corn is put into the silo quickly or slowly is largely an individual matter. If it is well matured or very dry, the sooner after cutting the better. If very juicy — as it will be in a wet season or when one must cut a little immature, always to be avoided, — it is a positive advantage to dry out some of the surplus water. Certain it is that corn can be put in the silo much dryer and keep, than was formerly supposed. It is always better to run the risk of frost than to put the corn in immature, since if put in at once after being frosted, there will be little loss. Doctor Hills, Director of the Vermont Experiment Station, found there was only 2 per cent. difference in food value between that frosted and unfrosted.

Modern tools such as the corn harvester, low, wide-tire wagon, the gasoline engine, blower, cutter, traveling feed table with jointed pipe running into the silo for easy distribution, make a formerly slow and heavy job a quick and comparatively easy one.

THE KIND OF SILO

There are three things necessary in a good silo; it must be tight, strong and durable — the latter an important factor in true economy. Unquestionably, the round silo is most desirable. None should be less than 20 feet deep, since the downward pressure compacting it is most important in excluding the air. It is always better for this reason to have a greater depth and less surface area. One can easily determine what capacity he will require if he has a given amount of stock and knows the length of time he must feed. A cubic foot of ensilage, after settling, will weigh 40 pounds. This is a liberal daily ration for a 1,000-pound animal.

The following table shows the capacity of various sizes of silos:

A silo 12 ft. diameter, 24 ft. deep, will contain 48 tons and will keep ten cows for 240 days.

A silo 15 ft. diameter, 24 ft. deep, will contain 72 tons and will keep fifteen cows 240 days.

A silo 14 ft. diameter, 30 ft. deep, will contain 96 tons and will keep twenty cows 240 days.

It would be advisable to allow additional capacity in case of enlarging the herd, or for summer feeding.



FIG. 84.—SHOWING CONSTRUCTION OF HOLLOW-WALL SILO WITH CEMENT MACHINE.

The silo most in evidence is the stave with iron hoops. When made of first-class lumber they are tight and strong, but necessarily costly and not particularly durable. The poorest stave is usually the measure of the silo's life. Unless some attention is paid to keeping the hoops well drawn up, the staves will slacken



FIG. 85.— CONCRETE SILO ON FARM OF A. T. OGDEN, KINDERHOOK, N. Y.

and the silo fail to be tight and fall down or blow over. It is not uncommon to see such, resembling a man who has imbibed too much of another product of corn.

Today one can build a silo of cement, if gravel and sand are convenient, nearly or quite as cheaply as he can one of first-class staves. It will be tight and strong and will stand until "Gabriel blows his trumpet." There are many who provide the frames and build by contract the solid cement wall silo. I know of several such giving excellent satisfaction. The statement that silos of this kind do not keep the contents in good condition is erroneous. The hollow-block structure is even more desirable but somewhat more expensive.

There is a third type with a hollow wall made in a patent iron form in a quarter circle which is moved around the wall until the ring is completed. A silo of this sort is cheaper than one of staves and to be preferred if one does not have to purchase the frame for a single silo. The accompanying illustration shows such a silo 28 feet high and 14 feet across, on the farm of A. T. Ogden, Kinderhook, N. Y., erected at a total cost of less than \$180 which includes the labor of his teams drawing materials at \$4 per day. The vitrified glazed tile make an excellent silo comparable with the cement blocks, fully as expensive.

I would unhesitatingly advise any one who can afford to build a first-class silo, to invest a little more and build of cement or tile. For the man who feels that a couple of hundred dollars is more than he can spare, particularly if he has his own lumber, a silo with wooden hoops sided up and down with paper between the boards, can be built for less than one hundred dollars and will serve for a number of years, when he should have saved enough to build a permanent one. In the end it is more true economy to borrow the money, if need be, and build of cement at the outset.

THE SUMMER SILO

There is no supplemental feed in summer so cheap, so sure, or better than silage. At the "Model Dairy" above referred to, we found silage — and that not of the best — a cheaper food at \$2 a ton than selected green feed at \$1.75. Personally for summer food I should prefer the compact contents in the lower part of a deep silo to those of a smaller one kept especially for this purpose.

FORAGE PLANTS OTHER THAN CORN

Corn is pre-eminently the crop for the silo because of the quantity which can be grown on an acre, and when dried the loss is proportionately greater than with plants having smaller stalks. Also, it keeps better ensiled than the leguminous ones which develop a different ferment, or those with a hollow stalk carrying a quantity of air. Nevertheless other crops may be and are often so kept with profit. Sometimes clover hay or the first cutting of alfalfa should be harvested when the weather is not favorable for curing. This can be put in the silo if one has the space, or the



FIG. 86.— SECTION OF 11-ACRE CORNFIELD. AVERAGE SIZE OF STALKS, 14 FEET.

silo can be partially filled and the contents fed during the summer before the room is needed for corn. They should be put in immediately after cutting, since if allowed to wilt they will not keep well. On account of the increased weight, it is an expensive undertaking; hence I do not recommend it except when they can not well be handled dry. A cutting of second crop clover or alfalfa ready at the time when one is filling the silo with corn can be run in with it. It will keep much better than alone and furnish needed protein in the ration. The same is true of oats and peas. The vines of the latter are kept in silos at the canneries and nearby

farmers find it well worth while to haul them in winter. Many are planting the medium green soy bean with the corn, adding at least one-third of this seed, and find it increases the product from the acre, but more particularly adds to the feeding value. Care in such cases must be exercised that the beans are not planted too deep, since the cotyledons of the beans will not push through. All these must always be supplemental to corn which is to be depended on to supply succulence, forage and the carbonaceous part of the ration. The protein in the main must come from alfalfa, clover and purchased by-products. Animals fed on silage crave some dry food and the clovers ordinarily can be so used with comparatively little water.



FIG. 87.— PART OF 50-ACRE CORNFIELD, ADIRONDACK FARMS, GLENS FALLS, N. Y.

FEEDING VALUE

I have already emphasized the feeding value of silage. The old idea that it would spoil the milk has now passed. This had a foundation in fact, for the thickly sowed immature corn put in the silo in the early days was exceedingly sour. Such silage compelled the Borden Condensed Milk people to place a ban on it

which has now been lifted. With well matured corn put in a tight silo, nearly as fine an article of milk can be made as with grass. The finest quality and highest priced dairy products going into our markets are made from silo-fed cows. It should always be fed after milking as there is a gas or ferment which the cow seems to absorb, and fed just before or during milking, will often be found in the product.

For beef making the silo is of equal value as in milk production, but animals so fed have their pores more open and should not be exposed as can those fed a dry product. Silage-fed beef has a juiciness not found in that made from dry feeds alone.

When one is feeding heavily of silage, which is a laxative, he may with safety use increased amounts of the concentrated constipating feeds, such as cottonseed meal.

Silage is to be commended as a feed for calves or young stock. It is not a perfect food, lacking as it does bone and muscle material, but when these are supplied as above, to my mind the silo is the factor that enables a man on the average farm under present day conditions to carry on dairying with profit.

PURCHASED GRAINS FOR THE DAIRY

D. P. WITTER, Berkshire, N. Y.

Farmers' Institute Lecturer



A quarter of a century ago New York State farmers purchased comparatively small amounts of grain, but at the present time a very large portion of the grain fed is brought into the state from the West or South. A good authority on the subject has recently said, "The people of New York State purchase annually more than two million tons of commercial feeding stuffs."

Let us consider some of the reasons for this great change.

In the early days farmers had their cows freshen in the spring and give milk during the summer months and early fall; but before winter they were dry, and during this non-producing period of from three to five months were fed on dry roughage. Most of the production period was while the cows were feeding on the then luxuriant pasture grasses, which were good food. The remainder of the milking period they were fed on roughage and grain raised on the farm.

When dairymen began to have cows freshen in the fall and give milk during the winter months a different condition arose. The roughage fed was largely timothy hay and dry corn stalks, two very carbonaceous foods. The grain was largely corn, oats and buckwheat. From this combination but a small amount of milk could be obtained.

It was soon found that the addition of linseed-oil meal, a rich protein feed, greatly increased the milk flow. The use of this feed was followed by the introduction upon the market of cottonseed and gluten meals. These feeding stuffs, all very rich in protein which the cows were greatly in need of, in addition to the carbonaceous farm ration, brought much better results.

Encouraged by better returns dairymen began to study the balanced ration and have since become quite efficient in the work of combining the different feeds most economically, and to best suit the varied conditions under which they are placed during the year.

The manufacturers of oatmeal, starch and other products were quick to see an outlet for their by-products, and were soon turning out large quantities of materials, a few of which were good, but others were practically worthless. All of these have been mixed with some good materials and sold to farmers under high sounding names for a good price, and in many instances when the farmer parted with his money it was to see little or no return for it.

Oat hulls, from the oatmeal factories, which are not as valuable per ton as good oat straw, have been made into oat chop and sold for many times their value. Cottonseed meal is being displaced by cottonseed feed, the latter containing the shuck of cotton seed. Gluten meal has given way to gluten feed, which means that the corn bran has been added. Buckwheat middlings have mixed with them the shuck, an indigestible material that is worse than worthless as a food for animals; yet, if the farmer buys any of these feeds he must pay for such valueless materials.

Linseed oil, cottonseed meal, gluten meal, distillers dried grains and many of the other by-products are from 80 to 90 per cent. digestible and are rich in protein. They are almost a necessity to mix with the farm feeds, in order to compound an economical ration for winter feeding to produce milk.

It is not claimed that a farmer with an analysis of feeds, such as a chemist might furnish him, will be able to compound a ration for a dairy cow that will exactly fit her needs. Timothy hay differs in composition, depending on the time of cutting, the season (whether wet or dry) and the environment generally. Corn silage differs in composition for the same and other reasons. It varies from seventy-five to ninety pounds of water to the hundred; from a good supply of grain to none at all, and from a mildly acid to a very acid condition. For these reasons the average analysis may not be correct for the food being used to compound a particular ration, hence one is never sure that the

ration is correctly compounded. Besides these variations the animals to be fed differ in constitutional make up and in ability to digest and assimilate food.

Regardless of variations in food and animal, the tables for compounding rations are very helpful in assisting the farmer to combine a more economical ration than would otherwise be possible.

Dairymen will do well to study carefully the cost and digestibility of the feeds they buy, for it is only the digestible part that is of value. None of the grains are entirely digestible, but the range is from about 60 to 90 per cent. in the better materials, wheat bran and distillers dried grains covering about those extremes.

The following table gives the amount of digestible material and ash in one hundred pounds.

	Pounds digestible	Protein	Carbohy- drates	Pounds of ash
Distillers dried grains.....	88.6	22.8	39.7	1.8
Corn	84.3	7.1	64.8	1.26
Hominy	84.0	8.9	61.0	2.2
Rye	81.5	8.3	65.5	1.98
Cottonseed meal	80.6	38.5	18.7	7.06
Gluten feed	80.6	23.0	49.2	.73
Wheat middlings	79.7	13.9	47.0	2.7
Wheat	79.8	9.2	64.9	1.71
Linseed oil meal.....	77.7	28.3	32.8	6.1
Barley	77.3	9.5	66.1	2.48
Buckwheat middlings	73.9	22.0	33.4	4.7
Oats	67.5	9.1	44.7	3.1
Brewers dried grains.....	65.7	16.2	35.5	4.72
Buckwheat	67.7	7.7	49.2	2.77
Wheat bran	59.5	12.6	44.1	5.8

Ration No. 1. Cost 25.6 cents.

Food	Price per ton	Pounds	Protein pounds	Total digestible nutrients pounds
Corn silage	\$5 00	40	.580	6.880
Red clover hay.....	12 00	10	1.050	4.900
Corn meal	30 00	3	.234	2.529
Distillers dried grains.....	32 00	2½	.570	2.210
Cottonseed meal	32 00	1	.376	.806
			2.790	17.325

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Ration No. 2. Cost 25.8 cents.

	Price per ton	Pounds	Protein pounds	Total digestible nutrients pounds
Corn silage	\$5 00	40	.560	6.880
Red clover hay.....	12 00	10	1.050	4.900
Corn meal	30 00	3	.234	2.520
Brewers dried grain.....	28 00	3	.600	1.971
Cottonseed meal	32 00	1	.376	.806
			2.820	17.086

The above rations are alike except that in number two, brewers dried grains are substituted for the distillers dried grains used in number one. The brewers dried grains are estimated at \$28 and the distillers dried grains at \$32 a ton. One-half pound less of the distillers grains are used than of the brewers grains; yet, on account of the higher digestibility of the former, the total digestible nutrients are more in number one and the cost a little less.

Ration No. 3. Cost 27.4 cents.

Corn silage	\$5 00	40	.560	6.880
Timothy hay	12 00	10	.280	4.810
Gluten feed	30 00	2	.426	1.612
Distillers dried grain.....	32 00	2	.456	1.772
Cottonseed meal	32 00	2	.752	1.612
			2.474	16.686

Ration No. 4. Cost 28.1.

Corn silage	\$5 00	40	.560	6.880
Timothy hay	12 00	10	.280	4.810
Gluten feed	30 00	2	.426	1.612
Wheat bran	26 00	3	.357	1.785
Cottonseed meal	32 00	2	.752	1.612
			2.375	16.699

A comparison of rations three and four shows that number four is more expensive than number three, yet it does not contain as much digestible material and is not as good a ration. The difference is brought about by the use of three pounds of wheat bran, in number four, in place of two pounds of distillers dried grains, in number three, the latter being enough more digestible to make it cheaper than wheat bran, even at six dollars more a ton.

Ration No. 5. Cost 26.5 cents.

	Price per ton	Pounds	Pounds protein	Total digestible nutrients pounds
Corn silage	\$5 00	40	.560	6.880
Alfalfa hay	15 00	10	1.030	5.280
Wheat bran	26 00	2	.238	1.190
Distillers dried grains.....	32 00	2	.456	1.772
Cottonseed meal	32 00	2	.752	1.612
			3.036	16.734

Ration number five costs less than either three or four and contains more digestible nutrients than either. The difference is caused principally by substituting alfalfa hay in number five for timothy hay in numbers three and four, a pound of alfalfa hay containing more than three times as much digestible protein as the same quantity of timothy hay.

Wheat bran contains much more ash than distillers grains and if the ash in the ration is low, the purchase of wheat bran as a part of the ration would be more economical than a food low in ash, even if that grain is more digestible.

Fat is also an important element in the ration, a pound of it being two and one-fourth times as strong as one of sugar or starch. If the animals are thin in flesh, a larger quantity of both fat and the other carbonaceous substances will be needed. This will also be the case if there is little corn in the silage or one has an abundance of alfalfa or clover hay. Hence the fat and digestible carbohydrates should not be ignored in purchasing the feeds high in digestible protein.

That the dairyman may know what is the most economical grain to buy, he should first make a ration of the feeds he has on the farm. The following will give an example.

Ration No. 6. Home grown.

Corn silage	\$5 00	40	.560	6.880
Mixed grasses and clover.....	10 00	10	.580	5.050
Ground oats	30 00	2	.176	1.350
Buckwheat middlings	28 00	1	.227	.739
Corn meal	30 00	1	.078	.843
			1.621	14.862

Purchased grains:				
	Price per ton	Pounds	Pounds protein	Total digestible nutrients pounds
Distillers dried grains.....	32 00	3	.681	2.658
Cottonseed meal	32 00	1	.376	.806
Total			2.678	18.326
Standard for a cow giving 32 pounds of 3.7 milk daily is.			2.696	18.520

From the above table we find, to meet the needs of this cow, the farmer must buy of protein 1.075 and of total digestible nutrients 3.658 pounds daily. The problem to solve is where can this food be purchased for the least money? In addition to the home-grown feeds, if the farmer buys three pounds of distillers dried grains and one pound of cottonseed meal, or their equivalent in digestible nutrients in some other grains, if he can find it for less money, he will have the required nutrients for the needs of a cow giving thirty to thirty-five pounds of good milk daily. In compounding the above rations only good unmixed grains have been used. The variations in cost are not great, yet there is enough to make the wise farmer study carefully the cost of digestibility of the feeds he buys.

With the aid of tables from Cornell Bulletin No. 321, which follow this article, and a knowledge of the price of grains in the local markets, the problem of the cheapest ration for an animal may be easily determined.

As a general rule the more fibre a food contains, the less its digestibility, and all feeding stuffs which contain a high per cent. of fibre should be avoided.

Economy seems to demand that the compounded feeding stuffs, at least with very rare exceptions, should not be purchased. Some of them are made of good materials only, but the manufacturer will charge for mixing and for his knowledge of the business. The average farmer can mix his own feeds just as well.

The balanced ready mixed grain ration is a snare and a delusion. The grain may be balanced properly, but what is it to be fed with? Two-thirds of the total dry matter in a dairy ration should be in the form of roughage. It makes a great difference whether the roughage is red clover hay, with a ratio of 1 to 5;

timothy hay 1 to 16; corn silage 1 to 14; or dry corn stalks 1 to 23, or a certain combination of them. The man does not live who can make a balanced ration without knowing what two-thirds of the ration is to be composed of.

Before buying any of the compounded feeding stuffs the farmer should send to the State Experimental Station at Geneva and secure Bulletin Number 351, on the "Inspection of Feeding Stuffs." By so doing he will learn that oat hulls, salt, sand, silica, buckwheat hulls, corn cobs, cottonseed hulls, peanut husks, peanut shells, rice hulls and other worthless materials are used to adulterate some of the compounded feeding stuffs. Surely no wise man will buy such materials for food if he knows it, and the information is at hand if he will use it.

The progressive farmer will carefully select his cows by the use of scales and tester; raise all the leguminous plants he can on his farm, and with them and good silage as a foundation, add such grains as he has grown; and will supply the lack in the ration by the purchase of good, digestible, unmixed grains, for the least possible money. By so doing the dairy will pay and the dairyman prosper.

Standard Tables for Computing Rations

The following tables and explanations, taken from Cornell bulletin No. 321, compiled by E. S. Savage, will be found a valuable guide in computing rations for milch cows.

TABLE I.—COMPOSITION OF FOODS (IN POUNDS)
(Compiled mainly from "Feeds and Feeding," by W. A. Henry)

In 100 pounds	Water	Ash	Protein		Carbohydrates				Fat	
					Fiber		Nitrogen-free extract			
			Total	Di-gest-ible	Total	Di-gest-ible	Total	Di-gest-ible	Total	Di-gest-ible
Succulent Roughage										
Fodder corn.....	79.3	1.2	1.8	1.0	5.0	3.0	12.2	8.9	0.5	0.4
Peas and oats.....	79.7	1.6	2.4	1.8	6.1	3.7	9.6	6.5	0.6	0.4
Peas and barley.....	80.0	1.6	2.8	2.1	6.8	3.5	8.2	5.6	0.6	0.4
Red clover.....	70.8	2.1	4.4	2.9	8.1	4.0	13.5	9.6	1.1	0.7
Alfalfa.....	71.8	2.7	4.8	3.6	7.4	3.2	12.3	8.9	1.0	0.4
Hungarian grass.....	71.1	1.7	3.1	2.0	9.2	6.4	14.2	9.5	0.7	0.4
Millet.....	80.2	1.0	1.5	0.8	6.5	4.0	10.5	7.0	0.3	0.2
Green sorghum.....	79.4	1.1	1.3	0.6	6.1	3.5	11.6	8.1	0.5	0.3
Potatoes.....	79.1	0.9	2.1	1.1	0.4	.....	17.4	15.7	0.1	0.1
Mangel beets.....	90.9	1.1	1.4	1.0	0.9	0.3	5.5	5.2	0.2	0.2
Sugar beets.....	86.5	0.9	1.8	1.3	0.9	0.3	9.8	9.5	0.1	0.1
Carrots ¹	88.6	1.0	1.1	0.8	1.3	0.7	7.6	7.0	0.4	0.3
Flat turnips.....	90.1	0.9	1.3	0.9	1.2	0.6	6.3	5.8	0.2	0.1
Rutabagas.....	88.6	1.2	1.2	1.0	1.3	1.0	7.5	7.1	0.2	0.2
Cabbages ²	90.0	0.8	2.6	2.3	0.9	0.8	5.5	5.1	0.2	0.1
Pumpkins.....	90.9	0.5	1.3	1.0	1.7	1.1	5.2	4.7	0.4	0.2
Apples ³	80.7	0.4	0.7	0.5	1.2	0.4	16.6	16.1	0.4	0.2
Apple pomace.....	83.0	0.6	1.0	0.6	2.9	1.9	11.6	9.9	0.9	0.4
Corn silage ⁴	73.6	2.1	2.7	1.4	7.8	5.0	12.9	9.2	0.9	0.7
Pea-vine silage ⁵	76.8	1.3	2.8	2.1	6.5	3.9	11.3	9.2	1.3	0.8

¹ Digestion coefficients of turnips were used.

² Digestion coefficients of dwarf Essex rape were used.

³ Digestion coefficients of sugar beets were used.

⁴ Digestion coefficients. 1906, Lindsey and Smith. Mass. (Hatch) Expt. Sta. Rpt.

⁵ Digestion coefficients of cow peas, ready for soiling, were used.

In 100 pounds	Water	Ash	Protein		Carbohydrates				Fat	
					Fiber		Nitrogen-free extract			
			Total	Di-gest-ible	Total	Di-gest-ible	Total	Di-gest-ible	Total	Di-gest-ible
Dried Roughage										
Timothy hay.....	13.2	4.4	5.9	2.8	29.0	14.5	45.0	27.9	2.5	1.3
Red clover hay.....	15.3	6.2	12.3	7.1	24.8	13.4	38.1	24.4	3.3	1.8
Alfalfa hay.....	8.2	8.8	14.6	10.5	28.9	13.6	37.4	26.9	2.1	0.9
Mixed grasses and clover.....	12.9	5.5	10.1	5.8	27.6	16.6	41.3	25.2	2.6	1.3
Hungarian hay.....	7.7	6.0	7.5	4.5	27.7	18.8	49.0	32.8	2.1	1.3
Millet hay ¹	16.0	4.3	6.5	2.0	28.0	17.6	43.4	24.3	1.8	0.9
Corn fodder.....	42.2	2.7	4.5	2.5	14.3	9.3	34.7	25.3	1.6	1.2
Corn stover.....	40.5	3.4	3.8	1.4	19.7	12.6	31.5	18.6	1.1	0.7
Dried sorghum ²	11.1	8.9	6.3	2.7	30.1	14.8	41.7	25.5	1.9	1.2
Oat straw.....	9.2	5.1	4.0	1.3	37.0	20.0	42.4	19.5	2.3	0.8
Wheat straw.....	9.6	4.2	3.4	0.8	38.1	19.1	43.4	16.1	1.3	0.4
Pea-vine straw ³	7.1	6.8	9.8	5.9	23.3	12.1	51.3	33.8	1.7	0.8
Bean straw ⁴	8.9	6.7	6.7	4.0	33.0	17.2	43.8	28.0	0.9	0.4

¹ Composition. 1896, C. S. Crocker. Mass. (Hatch) Expt. Sta. Rpt.

Digestion coefficients. 1906, Lindsey and Smith. Mass. (Hatch) Expt. Sta. Rpt.

² Composition. 1900, Thatcher. Nebr. Agr. Expt. Sta. Rpt.

Digestion coefficients. 1904, Headen. Colo. Agr. Expt. Sta. Bul. 93.

³ Composition. 1909, Bitting. U. S. Dept. Agr., Bur. Chem. Bul. 125.

⁴ Composition. 13th Annual Rpt., N. Y. (Geneva) Expt. Sta.

Digestion coefficients of pea-vine straw were used.

TABLE I.—(Continued)

In 100 pounds	Water	Ash	Protein		Carbohydrates				Fat	
					Fiber		Nitrogen-free extract			
			Total	Digestible	Total	Digestible	Total	Digestible	Total	Digestible
Concentrates										
Corn (dent).....	10.6	1.5	10.3	7.8	2.2	1.3	70.4	65.5	5.0	4.3
Corn and cob meal.....	15.1	1.5	8.5	4.4	6.6	3.0	64.8	57.0	3.5	2.9
Hominy chop.....	9.6	2.7	10.5	6.8	4.9	3.3	64.3	57.2	8.0	7.4
Gluten feed.....	9.2	2.0	25.0	21.3	6.8	5.2	53.5	47.6	3.5	2.9
Distillers' dried grains.....	7.6	2.0	31.2	22.8	11.6	11.0	35.4	28.7	12.2	11.6
Oats.....	10.4	3.2	11.4	8.8	10.8	3.3	59.4	45.7	4.8	4.3
Wheat ¹	10.5	1.8	11.9	10.0	1.8	0.8	71.9	66.1	2.1	1.3
Wheat bran.....	11.9	5.8	15.4	11.9	9.0	3.7	53.9	38.3	4.0	2.5
Wheat middlings.....	10.0	3.2	19.2	16.9	3.2	1.2	59.6	52.4	4.8	4.1
Red-dog flour.....	8.5	2.6	18.4	16.2	3.0	1.1	63.5	55.9	4.0	3.4
Barley.....	10.8	2.5	12.0	8.4	4.2	2.1	68.7	63.2	1.8	1.6
Malt sprouts.....	9.5	6.1	26.3	20.3	11.6	9.6	44.9	36.4	1.6	1.4
Brewers' wet grains.....	75.7	1.0	5.4	3.9	3.8	1.5	12.5	7.8	1.6	1.4
Brewers' dried grains.....	8.7	3.7	25.0	20.0	13.6	6.8	42.3	25.4	6.7	6.0
Rye ²	8.7	2.1	11.3	9.5	1.5	0.8	74.5	68.5	1.9	1.2
Rye bran ³	11.8	3.4	14.6	11.2	3.5	1.4	63.9	45.4	2.8	1.8
Buckwheat.....	13.4	2.0	10.8	8.1	11.7	2.8	59.7	45.4	2.4	2.4
Buckwheat bran.....	8.2	4.9	12.6	5.9	32.9	12.8	37.9	21.2	3.5	2.0
Buckwheat middlings.....	12.8	5.0	26.7	22.7	4.4	0.7	44.3	36.8	6.8	6.1
Culled beans.....	14.1	3.1	25.1	22.6	9.4	5.8	46.7	43.9	1.6	1.6
Canada field peas ⁴	15.0	2.4	23.7	19.7	7.9	2.1	50.2	47.2	0.8	0.4
Cottonseed meal.....	7.0	6.6	45.3	37.6	6.3	2.2	24.6	19.2	10.2	9.6
Linseed oil meal.....	9.8	5.5	33.9	30.2	7.3	4.2	35.7	27.8	7.8	6.9
Wet beet pulp.....	89.8	0.6	0.9	0.5	2.4	1.8	6.3	5.9	.....	.....
Dried beet pulp.....	8.4	4.5	8.1	4.1	17.5	12.6	60.8	52.3	0.7	.....
Sugar molasses.....	25.9	6.3	2.7	1.4	.....	.....	65.1	59.2	.....	.....
Skimmed milk.....	90.6	0.7	3.1	2.9	.....	.....	5.3	5.3	0.3	0.3
Buttermilk.....	90.2	0.7	4.0	3.8	.....	.....	4.0	3.9	1.1	1.0

¹ Digestion coefficients. 1909, Chamberlain. U. S. Dept. Agr., Bur. Chem. Bul. 120.² Digestion coefficients of barley were used.³ Digestion coefficients of wheat bran were used.⁴ Digestion coefficients of pea meal were used.

COMPUTING A RATION

The nutritive ratio

Investigators and practical feeders alike have found that there is a certain relation between the protein and the carbohydrates and fat in the best rations. This relation is called the "nutritive ratio." The ratio is always expressed as the amount of carbohydrates and fat that there is in a given food or ration compared with one pound of protein. In order to find the second term of the nutritive ratio in any given food or ration, multiply the digestible fat by $2\frac{1}{4}$; add the digestible fiber and digestible nitrogen-free extract; and divide the result by the digestible protein. For example, the nutritive ratio of fodder corn is found by Table 1 to be 1:12.8. This means that in fodder corn the relation of the protein to the carbohydrates and fat is as 1:12.8;

or, that fodder corn has twelve and eight-tenths times as much carbohydrates and fat as protein.

The relation of the protein to the carbohydrates and fat has been calculated in each of the foods in Table 3 and will aid in the choice of foods to properly balance a ration. A knowledge of the nutritive ratio of a food serves to tell at a glance whether that food is high or low in protein.

The calculation of the nutritive ratio of a ration as a whole serves as a check on the ration, to denote whether it is suited for the purpose intended, as will be shown later.

A food or ration having a nutritive ratio of less than 1:6 is spoken of as having a "narrow" nutritive ratio; if the ratio is above 1:6 the ration or food is said to have a "wide" nutritive ratio. These terms are purely relative, but serve in a rough way to distinguish the different kinds of foods and rations.

Feeding standards

The requirements of animals as to amount of necessary nutrients for such purposes as milk production, beef production, labor production, and the like, as well as the relation between these nutrients, have been the subject of much inquiry. Investigators have sought to put those requirements into definite form. They have given to this table of requirements the name "feeding standards." The standards are merely a statement of the necessary amount of nutriment required by an animal for a given purpose for a certain length of time. They are based on the requirements for 1,000 pounds live weight in 24 hours. The requirements are usually stated in terms of dry matter, digestible protein, digestible carbohydrates (fiber plus nitrogen-free extract), and digestible fat. The nutritive ratio for the given purpose for which the animal is to be fed is stated. With a view of shortening the computation of the ration as much as possible, the standards in Table 2 are given in terms of dry matter, digestible protein, and total nutriment. In order to obtain the total nutriment, the fat has been multiplied by $2\frac{1}{4}$ and the carbohydrates and protein added.

TABLE II.—FEEDING STANDARDS

(Based on Wolff-Lehmann and Haecker standards. For one day and 1,000 pounds live weight)

	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment (Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$) (pounds))	Nutritive ratio
Milking cows:*				
For maintenance.....700	7.925	.....
For product in addition to maintenance:				
For 1 lb. of milk testing 2.5 per cent. fat.....0527	.2574	.....
2.6.....0535	.2629	.....
2.7.....0543	.2685	.....
2.8.....0551	.2743	.....
2.9.....0559	.2812	.....
3.0.....0567	.2870	.....
3.1.....0575	.2928	.....
3.2.....0583	.2987	.....
3.3.....0591	.3055	.....
3.4.....0599	.3115	.....
3.5.....0608	.3185	.....
3.6.....0616	.3243	.....
3.7.....0624	.3312	.....
3.8.....0632	.3369	.....
3.9.....0640	.3428	.....
4.0.....0648	.3497	.....
4.1.....0656	.3555	.....
4.2.....0664	.3612	.....
4.3.....0672	.3671	.....
4.4.....0680	.3729	.....
4.5.....0689	.3787	.....
4.6.....0697	.3842	.....
4.7.....0705	.3890	.....
4.8.....0713	.3945	.....
4.9.....0721	.3992	.....
5.0.....0729	.4048	.....
5.1.....0737	.4105	.....
5.2.....0745	.4150	.....
5.3.....0753	.4209	.....
5.4.....0761	.4253	.....
5.5.....0770	.4311	.....
5.6.....0778	.4355	.....
5.7.....0786	.4413	.....
5.8.....0794	.4469	.....
5.9.....0802	.4517	.....
6.0.....0810	.4572	.....
6.1.....0818	.4619	.....
6.2.....0826	.4676	.....
6.3.....0834	.4721	.....
6.4.....0842	.4791	.....
6.5.....0851	.4835	.....
6.6.....0859	.4882	.....
6.7.....0867	.4926	.....
6.8.....0875	.4984	.....
6.9.....0883	.5040	.....
7.0.....0891	.5075	.....

* In ratios for milking cows there should be not less than 24 pounds of dry matter. The nutritive ratio should be not wider than 1:6 nor narrower than 1:4.5. About two-thirds of the dry matter in the ration should come from the roughage and one third from the grain, except in the case of the heaviest producers, when relatively more may come from the grain.

A ration for a dairy cow illustrating the important factors: digestibility, palatability, variety and cost.—A ration is desired for a cow weighing 1,000 pounds and yielding daily 30 pounds of milk testing 3.7 per cent. butter fat. According to Table II, the ration must contain 24 pounds or more of dry matter (see footnote to table), in which, for the maintenance of her body, this cow will require .700 pound of protein and 7.925 pounds of total nutriment. In addition to maintenance, she will require .0624 pound protein and .3312 pound total nutriment for the production of one pound of milk testing 3.7 per cent. fat; for 30 pounds of milk she would require 30 times these amounts. Her total requirements will be as follows:

	Protein	Total nutriment
For maintenance .....	.700	7.925
For 30 pounds of milk, 3.7 per cent. fat..	1.872	9.936
	<hr/>	<hr/>
Total	2.572	17.861
	<hr/>	<hr/>

17.861 (pounds of total nutriment)—2.572 (pounds of protein) = 15.289 (pounds of carbohydrates + $[2\frac{1}{4} \times \text{fat}]$). 15.289 \div 2.572 (pounds of protein) = 5.9. Therefore the nutritive ratio of the required ration must be not wider than 1:5.9. The protein in the ration must total not less than 2.572 pounds, and there must be digestible protein, fiber, nitrogen-free extract, and fat multiplied by $2\frac{1}{4}$, to total 17.861 pounds.

A combination of foods suitable for a dairy cow, in sufficient quantity to yield total nutriment and protein in the above amounts, must now be found. It will be assumed that at the price at which a farmer can buy his foods or raise them, he will find that red clover hay, corn silage, corn and cob meal, gluten feed, and cottonseed meal will yield him his total nutriment the cheapest.

A cow will eat in twenty-four hours, when fed the right proportion of roughage and concentrates, about one pound of hay and three pounds of corn silage to each one hundred pounds of live weight. In order to meet the requirements of the feeding standard when fed the above amount of roughage, she will need about one pound of grain to three pounds of milk.

In order to have the nutritive ratio 1:5.9 in the ration, about equal parts of grains below twenty per cent. digestible protein and of grains above twenty per cent. digestible protein will be found necessary. In the ration suggested above, corn and cob meal has been chosen for the grain below twenty per cent. digestible protein, and gluten feed and cottonseed meal have been chosen for the grains above twenty per cent. digestible protein. If it were necessary to have a narrower nutritive ratio, more foods having a high protein content would be included; if a wider ration were desired, more carbohydrate foods would be used. Calculating in detail from Table I, the amounts of dry matter, digestible nutrients, and total nutriment in the several foods in the suggested ration are as follows:

Food	Dry matter	Digestible protein	Digestible fiber	Digestible nitrogen-free extract	Digestible fat	Total nutriment
10 lbs. red clover hay.....	8.47	.710	1.340	2.440	.180	4.895
30 lbs. corn silage.....	7.92	.420	1.500	2.760	.210	5.153
5 lbs. corn and cob meal.....	4.25	.220	.150	2.850	.145	3.546
4 lbs. gluten feed.....	3.63	.852	.208	1.904	.116	3.225
1 lb. cottonseed meal.....	.93	.376	.022	.192	.096	.806
Total.....	25.20	2.578	3.220	10.146	.747	17.625

The nutritive ratio of the above ration may be calculated by subtracting the protein from the total nutriment and dividing the remainder, which is the carbohydrates plus the fat multiplied by $2\frac{1}{4}$, by the protein:

$$17.625 - 2.578 = 15.047$$

$$15.047 \div 2.578 = 5.8$$

Therefore the nutritive ratio is 1:5.8, which is correct, since it was said on page 345 that the ration must be not wider than 1:5.9.

By another method, the fat may be multiplied by $2\frac{1}{4}$, the fiber and nitrogen-free extract added, and the total divided by the protein:

$$.747 \times 2\frac{1}{4} = 1.681$$

$$1.681 + 10.146 + 3.220 = 15.047$$

$$15.047 \div 2.578 = 5.8$$

The result, 1:5.8 for the nutritive ratio, is of course exactly the same.

A shorter method is by Table III, which has been compiled from Table I in order to shorten the work of computing rations. The total nutriment has been calculated for different amounts of the several foods. Instead of computing the ration in detail, as above, it may be computed with the aid of Table III as follows:

TABLE III.—DIGESTIBLE COMPOSITION OF STATED AMOUNTS OF COMMON FOODS
(Compiled from Table I)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Succulent Roughage					
Fodder corn.....	1	.207	.010	.138	1 : 12.8
	5	1.035	.050	.690	
	15	3.105	.150	2.070	
	20	4.140	.200	2.760	
	25	5.175	.250	3.450	
	30	6.210	.300	4.140	
	35	7.245	.350	4.830	
	40	8.280	.400	5.520	
Peas and oats.....	1	.203	.018	.129	1 : 6.2
	5	1.015	.090	.645	
	15	3.045	.270	1.935	
	20	4.060	.360	2.580	
	25	5.075	.450	3.225	
	30	6.090	.540	3.870	
	35	7.105	.630	4.515	
	40	8.120	.720	5.160	
Peas and barley.....	1	.200	.021	.121	1 : 4.8
	5	1.000	.105	.605	
	15	3.000	.315	1.815	
	20	4.000	.420	2.420	
	25	5.000	.525	3.025	
	30	6.000	.630	3.630	
	35	7.000	.735	4.235	
	40	8.000	.840	4.840	
Red clover.....	1	.292	.029	.181	1 : 5.2
	5	1.460	.145	.905	
	15	4.380	.435	2.715	
	20	5.840	.580	3.620	
	25	7.300	.725	4.525	
	30	8.760	.870	5.430	
	35	10.220	1.015	6.335	
	40	11.680	1.160	7.240	
Alfalfa.....	1	.282	.036	.166	1 : 3.6
	5	1.410	.180	.830	
	10	2.820	.360	1.660	
	15	4.230	.540	2.490	
	20	5.640	.720	3.320	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Succulent Roughage—(Cont.)					
Alfalfa—(Continued)	25	7.050	.900	4.150	
	30	8.460	1.080	4.980	
	35	9.870	1.260	5.810	
	40	11.280	1.440	6.640	
Hungarian grass	1	.289	.020	.188	1 : 8.4
	5	1.445	.100	.940	
	10	2.890	.200	1.880	
	15	4.335	.300	2.820	
	20	5.780	.400	3.760	
	25	7.225	.500	4.700	
	30	8.670	.600	5.640	
	35	10.115	.700	6.580	
	40	11.560	.800	7.520	
Millet	1	.198	.008	.123	1 : 14.4
	5	.990	.040	.615	
	10	1.980	.080	1.230	
	15	2.970	.120	1.845	
	20	3.960	.160	2.460	
	25	4.950	.200	3.075	
	30	5.940	.240	3.690	
	35	6.930	.280	4.305	
	40	7.920	.320	4.920	
Green sorghum	1	.206	.006	.129	1 : 20.5
	5	1.030	.030	.645	
	10	2.060	.060	1.290	
	15	3.090	.090	1.935	
	20	4.120	.120	2.580	
	25	5.150	.150	3.225	
	30	6.180	.180	3.870	
	35	7.210	.210	4.515	
	40	8.240	.240	5.160	
Potatoes	1	.209	.011	.170	1 : 14.5
	5	1.045	.055	.850	
	10	2.090	.110	1.700	
	15	3.135	.165	2.550	
	20	4.180	.220	3.400	
	25	5.225	.275	4.250	
	30	6.270	.330	5.100	
Mangel beets	1	.091	.010	.070	1 : 6.0
	5	.455	.050	.350	
	10	.910	.100	.700	
	15	1.365	.150	1.050	
	20	1.820	.200	1.400	
	25	2.275	.250	1.750	
	30	2.730	.300	2.100	
Sugar beets	1	.135	.013	.113	1 : 7.7
	5	.675	.065	.565	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$) (pounds)]	Nutritive ratio
Succulent Roughage—(Cont.)					
Sugar beets—(Continued) . . .	10	1.350	.130	1.130	
	15	2.025	.195	1.695	
	20	2.700	.260	2.260	
	25	3.375	.325	2.825	
	30	4.050	.390	3.390	
Carrots	1	.114	.008	.092	1 : 10.5
	5	.570	.040	.460	
	10	1.140	.080	.920	
	15	1.710	.120	1.380	
	20	2.280	.160	1.840	
	25	2.850	.200	2.300	
	30	3.420	.240	2.760	
Flat turnips	1	.099	.009	.075	1 : 7.3
	5	.495	.045	.375	
	10	.990	.090	.750	
	15	1.485	.135	1.125	
	20	1.980	.180	1.500	
	25	2.475	.225	1.875	
	30	2.970	.270	2.250	
Rutabagas	1	.114	.010	.096	1 : 8.6
	5	.570	.050	.480	
	10	1.140	.100	.960	
	15	1.710	.150	1.440	
	20	2.280	.200	1.920	
	25	2.850	.250	2.400	
	30	3.420	.300	2.880	
Cabbages	1	.100	.023	.084	1 : 2.7
	5	.500	.115	.420	
	10	1.000	.230	.840	
	15	1.500	.345	1.260	
	20	2.000	.460	1.680	
	25	2.500	.575	2.100	
	30	3.000	.690	2.520	
Pumpkins	1	.091	.010	.073	1 : 6.3
	5	.455	.050	.365	
	10	.910	.100	.730	
	15	1.365	.150	1.095	
	20	1.820	.200	1.460	
	25	2.275	.250	1.825	
	30	2.730	.300	2.190	
Apples	1	.193	.005	.175	1 : 34.0
	5	.965	.025	.875	
	10	1.930	.050	1.750	
	15	2.895	.075	2.625	
	20	3.860	.100	3.500	
	25	4.825	.125	4.375	
	30	5.790	.150	5.250	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Succulent Roughage—(C'd'd.)					
Apple pomace.....	1	.170	.006	.133	1 : 21.2
	5	.850	.030	.665	
	10	1.700	.060	1.330	
	15	2.550	.090	1.995	
	20	3.400	.120	2.660	
	25	4.250	.150	3.325	
	30	5.100	.180	3.990	
Corn silage.....	1	.264	.014	.172	1 : 11.3
	5	1.320	.070	.860	
	10	2.640	.140	1.720	
	15	3.960	.210	2.580	
	20	5.280	.280	3.440	
	25	6.600	.350	4.300	
	30	7.920	.420	5.160	
	35	9.240	.490	6.020	
	40	10.560	.560	6.880	
	45	11.880	.630	7.740	
	50	13.200	.700	8.600	
Pea-vine silage.....	1	.232	.021	.170	1 : 7.1
	5	1.160	.105	.850	
	10	2.320	.210	1.700	
	15	3.480	.315	2.550	
	20	4.640	.420	3.400	
	25	5.800	.525	4.250	
	30	6.960	.630	5.100	
	35	8.120	.735	5.950	
	40	9.280	.840	6.800	
Dried Roughage					
Timothy hay.....	1	.868	.028	.481	1 : 16.2
	4	3.472	.112	1.924	
	6	5.208	.168	2.886	
	8	6.944	.224	3.848	
	10	8.680	.280	4.810	
	12	10.416	.336	5.772	
	14	12.152	.392	6.734	
	16	13.888	.448	7.696	
	18	15.624	.504	8.658	
	20	17.360	.560	9.620	
Red clover hay.....	1	.847	.071	.490	1 : 5.9
	4	3.388	.284	1.960	
	6	5.082	.426	2.940	
	8	6.776	.568	3.920	
	10	8.470	.710	4.900	
	12	10.164	.852	5.880	
	14	11.858	.994	6.860	
	16	13.552	1.136	7.840	
	18	15.246	1.278	8.820	
	20	16.940	1.420	9.800	
Alfalfa hay.....	1	.918	.105	.530	1 : 4.0
	4	3.672	.420	2.120	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat × 2½)] (pounds)	Nutritive ratio
Dried Roughage—(Cont.)					
Alfalfa hay—(Continued)....	6	5.508	.630	3.180	"
	8	7.344	.840	4.240	
	10	9.180	1.050	5.300	
	12	11.016	1.260	6.360	
	14	12.852	1.470	7.420	
	16	14.688	1.680	8.480	
	18	16.524	1.890	9.540	
	20	18.360	2.100	10.600	
Mixed grasses and clover....	1	.871	.058	.505	1 : 7.7
	4	3.484	.232	2.020	
	6	5.226	.348	3.030	
	8	6.968	.464	4.040	
	10	8.710	.580	5.050	
	12	10.452	.696	6.060	
	14	12.194	.812	7.070	
	16	13.936	.928	8.080	
	18	15.678	1.044	9.090	
	20	17.420	1.160	10.100	
Hungarian hay.....	1	.923	.045	.590	1 : 12.1
	4	3.692	.180	2.360	
	6	5.538	.270	3.540	
	8	7.384	.360	4.720	
	10	9.230	.450	5.900	
	12	11.076	.540	7.080	
	14	12.922	.630	8.260	
	16	14.768	.720	9.440	
Millet hay.....	1	.840	.020	.459	1 : 22.0
	4	3.360	.080	1.836	
	6	5.040	.120	2.754	
	8	6.720	.160	3.672	
	10	8.400	.200	4.590	
	12	10.080	.240	5.508	
	14	11.760	.280	6.426	
	16	13.440	.320	7.344	
Corn fodder.....	1	.578	.025	.398	1 : 14.9
	5	2.890	.125	1.990	
	8	4.624	.200	3.184	
	12	6.936	.300	4.776	
	15	8.670	.375	5.970	
	18	10.404	.450	7.164	
	20	11.560	.500	7.960	
Corn stover.....	1	.595	.014	.342	1 : 23.4
	5	2.975	.070	1.710	
	8	4.760	.112	2.736	
	12	7.140	.168	4.104	
	15	8.925	.210	5.130	
	18	10.710	.252	6.156	
	20	11.900	.280	6.840	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Dried Roughage—(C'd d.)					
Dried sorghum.....	1	.899	.027	.457	1 : 15.9
	4	3.556	.108	1.828	
	6	5.334	.162	2.742	
	8	7.112	.216	3.656	
	10	8.890	.270	4.570	
	12	10.668	.324	5.484	
	14	12.446	.378	6.398	
	16	14.224	.432	7.312	
	18	16.002	.486	8.226	
	20	17.780	.540	9.140	
Oat straw.....	1	.908	.013	.426	1 : 31.8
	3	2.724	.039	1.278	
	5	4.540	.065	2.130	
	8	7.264	.104	3.408	
	12	10.896	.156	5.112	
	15	13.620	.195	6.390	
	18	16.344	.234	7.668	
Wheat straw.....	1	.904	.008	.369	1 : 45.1
	3	2.712	.024	1.107	
	5	4.520	.040	1.845	
	8	7.232	.064	2.952	
	12	10.848	.096	4.428	
	15	13.560	.120	5.535	
	18	16.272	.144	6.642	
Pea-vine straw.....	1	.929	.059	.536	1 : 8.1
	3	2.787	.177	1.608	
	5	4.645	.295	2.680	
	8	7.432	.472	4.288	
	12	11.148	.708	6.432	
	15	13.935	.885	8.040	
	18	16.722	1.062	9.648	
Bean straw.....	1	.911	.040	.501	1 : 11.5
	3	2.733	.120	1.503	
	5	4.555	.200	2.505	
	8	7.288	.320	4.008	
	12	10.932	.480	6.012	
	15	13.665	.600	7.515	
	18	16.398	.720	9.018	
Concentrates					
Corn (dent).....	1	.894	.078	.843	1 : 9.8
	2	1.788	.156	1.686	
	3	2.682	.234	2.529	
	4	3.576	.312	3.372	
	5	4.470	.390	4.215	
	6	5.364	.468	5.058	
	7	6.258	.546	5.901	
	8	7.152	.624	6.744	
	9	8.046	.702	7.587	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment (Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)) (pounds)	Nutritive ratio
Concentrates—(Continued)					
Corn and cob meal.....	1	.849	.044	.709	1 : 15.1
	2	1.698	.088	1.418	
	3	2.547	.132	2.127	
	4	3.396	.176	2.836	
	5	4.245	.220	3.545	
	6	5.094	.264	4.254	
	7	5.943	.308	4.963	
	8	6.792	.352	5.672	
	9	7.641	.396	6.381	
Hominy chop.....	1	.904	.068	.840	1 : 11.4
	2	1.808	.136	1.680	
	3	2.712	.204	2.520	
	4	3.616	.272	3.360	
	5	4.520	.340	4.200	
	6	5.424	.408	5.040	
	7	6.328	.476	5.880	
	8	7.232	.544	6.720	
	9	8.136	.612	7.560	
Gluten feed.....	1	.908	.213	.806	1 : 2.8
	2	1.816	.426	1.612	
	3	2.724	.639	2.418	
	4	3.632	.852	3.224	
	5	4.540	1.065	4.030	
	6	5.448	1.278	4.836	
	7	6.356	1.491	5.642	
	8	.264	1.704	6.448	
	9	8.172	1.917	7.254	
Distillers' dried grains.....	1	.924	.228	.886	1 : 2.9
	2	1.848	.456	1.772	
	3	2.772	.684	2.658	
	4	3.696	.912	3.544	
	5	4.620	1.140	4.430	
	6	5.544	1.368	5.316	
	7	6.468	1.596	6.202	
	8	7.392	1.824	7.088	
	9	8.316	2.052	7.974	
Oats.....	1	.896	.088	.675	1 : 6.7
	2	1.792	.176	1.350	
	3	2.688	.264	2.025	
	4	3.584	.352	2.700	
	5	4.480	.440	3.375	
	6	5.376	.528	4.050	
	7	6.272	.616	4.725	
	8	7.168	.704	5.400	
	9	8.064	.792	6.075	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Concentrates—(Continued)					
Wheat	1	.895	.100	.798	1 : 7.0
	2	1.790	.200	1.596	
	3	2.685	.300	2.394	
	4	3.580	.400	3.192	
	5	4.475	.500	3.990	
	6	5.370	.600	4.788	
	7	6.265	.700	5.586	
	8	7.160	.800	6.384	
	9	8.055	.900	7.182	
Wheat bran	1	.881	.119	.595	1 : 4.0
	2	1.762	.238	1.190	
	3	2.643	.357	1.785	
	4	3.524	.476	2.380	
	5	4.405	.595	2.975	
	6	5.286	.714	3.570	
	7	6.167	.833	4.165	
	8	7.048	.952	4.760	
	9	7.929	1.071	5.355	
Wheat middlings	1	.900	.169	.797	1 : 3.7
	2	1.800	.338	1.594	
	3	2.700	.507	2.391	
	4	3.600	.676	3.188	
	5	4.500	.845	3.985	
	6	5.400	1.014	4.782	
	7	6.300	1.183	5.579	
	8	7.200	1.352	6.376	
	9	8.100	1.521	7.173	
Red-dog flour	1	.915	.162	.809	1 : 4.0
	2	1.830	.324	1.618	
	3	2.745	.486	2.427	
	4	3.660	.648	3.236	
	5	4.575	.810	4.045	
	6	5.490	.972	4.854	
	7	6.405	1.134	5.663	
	8	7.320	1.296	6.472	
	9	8.235	1.458	7.281	
Barley	1	.892	.084	.773	1 : 8.2
	2	1.784	.168	1.546	
	3	2.676	.252	2.319	
	4	3.568	.336	3.092	
	5	4.460	.420	3.865	
	6	5.352	.504	4.638	
	7	6.244	.588	5.411	
	8	7.136	.672	6.184	
	9	8.028	.756	6.957	
Malt sprouts	1	.905	.203	.695	1 : 2.4
	2	1.810	.406	1.390	
	3	2.715	.609	2.085	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Concentrates—(Continued)					
Malt sprouts—(Con.).....	4	3.620	.812	2.780	
	5	4.525	1.015	3.475	
	6	5.430	1.218	4.170	
	7	6.335	1.421	4.865	
	8	7.240	1.624	5.560	
	9	8.145	1.827	6.255	
Brewers' wet grains.....	1	.243	.039	.164	1 : 3.2
	5	1.215	.195	.820	
	10	2.430	.390	1.640	
	15	3.645	.585	2.460	
	20	4.860	.780	3.280	
	25	6.075	.975	4.100	
	30	7.290	1.170	4.920	
	35	8.505	1.365	5.740	
Brewers' dried grains.....	1	.913	.200	.657	1 : 2.3
	2	1.826	.400	1.314	
	3	2.739	.600	1.971	
	4	3.652	.800	2.628	
	5	4.565	1.000	3.285	
	6	5.478	1.200	3.942	
	7	6.391	1.400	4.599	
	8	7.304	1.600	5.256	
	9	8.217	1.800	5.913	
Rye.....	1	.913	.095	.815	1 : 7.6
	2	1.826	.190	1.630	
	3	2.739	.285	2.445	
	4	3.652	.380	3.260	
	5	4.565	.475	4.075	
	6	5.478	.570	4.890	
	7	6.391	.665	5.705	
	8	7.304	.760	6.520	
	9	8.217	.855	7.335	
Rye bran.....	1	.882	.112	.621	1 : 4.5
	2	1.764	.224	1.242	
	3	2.646	.336	1.863	
	4	3.528	.448	2.484	
	5	4.410	.560	3.105	
	6	5.292	.672	3.726	
	7	6.174	.784	4.347	
	8	7.056	.896	4.968	
	9	7.938	1.008	5.589	
Buckwheat.....	1	.866	.081	.617	1 : 6.6
	2	1.732	.162	1.234	
	3	2.598	.243	1.851	
	4	3.464	.324	2.468	
	5	4.330	.405	3.085	
	6	5.196	.486	3.702	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Concentrates—(Continued)					
Buckwheat—(Continued)	7	6.062	.567	4.319	1 : 6.5
	8	6.928	.648	4.936	
	9	7.794	.729	5.553	
Buckwheat bran	1	.918	.059	.444	
	2	1.836	.118	.888	
	3	2.754	.177	1.332	
	4	3.672	.236	1.776	
	5	4.590	.295	2.220	
	6	5.508	.354	2.664	
	7	6.426	.413	3.108	
	8	7.344	.472	3.552	
	9	8.262	.531	3.996	
Buckwheat middlings	1	.872	.227	.739	1 : 2.3
	2	1.744	.454	1.478	
	3	2.616	.681	2.217	
	4	3.488	.908	2.956	
	5	4.360	1.135	3.695	
	6	5.232	1.362	4.434	
	7	6.104	1.589	5.173	
	8	6.976	1.816	5.912	
	9	7.848	2.043	6.651	
Culled beans	1	.859	.226	.759	1 : 2.4
	2	1.718	.452	1.518	
	3	2.577	.678	2.277	
	4	3.436	.904	3.036	
	5	4.295	1.130	3.795	
	6	5.154	1.356	4.554	
	7	6.013	1.582	5.313	
	8	6.872	1.808	6.072	
	9	7.731	2.034	6.831	
Canada field peas	1	.850	.197	.699	1 : 2.5
	2	1.700	.394	1.398	
	3	2.550	.591	2.097	
	4	3.400	.788	2.796	
	5	4.250	.985	3.495	
	6	5.100	1.182	4.194	
	7	5.950	1.379	4.893	
	8	6.800	1.576	5.592	
	9	7.650	1.773	6.291	
Cottonseed meal	1	.930	.376	.806	1 : 1.1
	2	1.860	.752	1.612	
	3	2.790	1.128	2.418	
	4	3.720	1.504	3.224	
	5	4.650	1.880	4.030	
	6	5.580	2.256	4.836	
	7	6.510	2.632	5.642	
	8	7.440	3.008	6.448	
	9	8.370	3.384	7.254	

TABLE III.—(Continued)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment: [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Concentrates—(Continued)					
Linseed oil meal.....	1	.902	.302	.777	1 : 1.6
	2	1.804	.604	1.554	
	3	2.706	.906	2.331	
	4	3.608	1.208	3.108	
	5	4.510	1.510	3.885	
	6	5.412	1.812	4.662	
	7	6.314	2.114	5.439	
	8	7.216	2.416	6.216	
	9	8.118	2.718	6.993	
Wet beet pulp.....	1	.102	.005	.082	1 : 15.4
	5	.510	.025	.410	
	10	1.020	.050	.820	
	15	1.530	.075	1.230	
	20	2.040	.100	1.640	
	25	2.550	.125	2.050	
	30	3.060	.150	2.460	
	35	3.570	.175	2.870	
	40	4.080	.200	3.280	
Dried beet pulp.....	1	.916	.041	.690	1 : 15.8
	2	1.832	.082	1.380	
	3	2.748	.123	2.070	
	4	3.664	.164	2.760	
	5	4.580	.205	3.450	
	6	5.496	.246	4.140	
	7	6.412	.287	4.830	
	8	7.328	.328	5.520	
	9	8.244	.369	6.210	
Sugar molasses.....	1	.741	.014	.606	1 : 42.3
	2	1.482	.028	1.212	
	3	2.223	.042	1.818	
	4	2.964	.056	2.424	
	5	3.705	.070	3.030	
	6	4.446	.084	3.636	
	7	5.187	.098	4.242	
	8	5.928	.112	4.848	
	9	6.669	.126	5.454	
Skimmed milk.....	1	.094	.029	.089	1 : 2.1
	4	.376	.116	.356	
	6	.564	.174	.534	
	8	.752	.232	.712	
	10	.940	.290	.890	
	12	1.128	.348	1.068	
	14	1.316	.406	1.246	
	16	1.504	.464	1.424	
	18	1.692	.522	1.602	
	20	1.880	.580	1.780	
	22	2.068	.638	1.958	
	24	2.256	.696	2.136	

TABLE III.—(Concluded)

Kind of food	Pounds of food	Dry matter (pounds)	Digestible protein (pounds)	Total nutriment [Dig. pro. + dig. fiber + dig. N.F.E. + (dig. fat $\times 2\frac{1}{2}$)] (pounds)	Nutritive ratio
Concentrates—(Concluded)					
Buttermilk	1	.098	.038	.100	1:1.6
	3	.294	.114	.300	
	5	.490	.190	.500	
	8	.784	.304	.800	
	10	.980	.380	1.000	
	12	1.176	.456	1.200	
	15	1.470	.570	1.500	
	18	1.764	.684	1.800	
	20	1.960	.760	2.000	
	25	2.450	.950	2.500	
	30	2.940	1.140	3.000	

The requirements are as worked out on page 345. Then, instead of the work on page 346, the ration may be written down directly from Table III as follows:

Foods	Dry matter	Digestible protein	Total nutriment
10 lbs. red clover hay	8.47	.710	4.900
30 lbs. corn silage	7.92	.420	5.160
5 lbs. corn and cob meal	4.25	.220	3.545
4 lbs. gluten feed	3.63	.852	3.224
1 lb. cottonseed meal .....	.93	.376	.806
Total	25.20	2.578	17.635

The total nutriment, 17,635 pounds, is slightly different here from that on page 346, because in computing Table III from Table I the fourth decimal place was dropped, while in calculating the ration on page 346 it is retained. When the shorter method is used, rations may be calculated very rapidly. The nutritive ratio of the ration is calculated as in the first method, on page 346.

The above ration meets the factors which, it has been said, must be considered. Other illustrative rations follow, in order to show the shorter method for computing rations for all classes of stock.

FIRST PRINCIPLES IN BREEDING *

F. S. PEER, Ithaca, N. Y.

Author of Soiling Ensilage and Stable Construction

It is generally conceded that all varieties of domestic animals have a common ancestry in some wild breed of the same species or family.

Domestic horses, cattle, sheep and swine are very much improved, and quite different in conformation and other characteristics today, than the wild beasts of the forest, mountain and plain from whom they descended.

While all the varieties of wild animals known have remained practically the same to this day as they were in the earliest history and tradition of man, the improvements, the great changes that have come about among the families of domestic animals have all happened, not only during modern history, but principally within the last 200 years. In fact, the first real departure or intelligent effort made by man in the breeding of cattle for improvement in England, began only about 150 years ago.

Wild animals have gone on for countless ages and are still going on with no perceptible change or variations except in minor particulars, such as acquiring heavier coats, thicker hides, heavier bones, and coarser horns in the colder climates of the north, than animals of the same family that inhabit the warmer sections.

As soon however as these wild horses, cattle, sheep, and swine, come under domestication, (especially when attended with liberal feeding and better care) we at once note changes that are quite phenomenal.

"Like begets like" is a very ancient axiom among breeders and one that is often repeated to this day, but it cannot be strictly true. Otherwise our domestic animals would have remained the same today as the wild animals from whence they descended. But under domestication, wonderful changes have taken place. From the wild horses weighing 700 to 900 pounds to the

* Condensed by the author from two chapters of his coming book, *The Breeding and Management of Farm Stock*.

ponderous Shire, Clyde, Suffolk, Belgium, etc., weighing from 2,000 to 2,500 pounds; from wild cattle weighing 500 to 700 pounds to the magnificent Shorthorns and Herefords, that tip the scales at a ton or more; from the wild hogs weighing from 150 to 200 pounds to some of our modern domestic families that require, when fitted, half a ton weight to balance them; from wild sheep weighing 40 to 50 pounds to some of our improved mutton breeds ranging from 200 to 300 and even 400 pounds; from the Merino sheep that in their native hills of Spain shear four to five pounds of wool per head, (that have improved but little above that clip to the present day in their native mountains) but which have been so improved that within less than one hundred years of better care and feeding they have been made to produce as high as 30 and even 40 pounds of wool in a year's growth; from wild cows that suckled their young for three or four months of the year and then became dry, to any number of animals in any of the great dairy families with authentic records of from 1,000 to 1,500 pounds of milk per month, or 10,000 to 12,000 pounds of milk for a year, (ten to twelve times their own weight) and producing in extreme cases over 1,000 pounds of butter within the year.

Such have been the wonderful changes that have been brought about in our domestic animals, roughly speaking, within the last 200 years, and generally speaking, within the last one hundred years. This forces us to the conclusion that like does not always produce like; that there are exceptions. We are also forced to the conclusion that as these great changes have all come about with animals under domestication, man alone is responsible for them, and that had these different families of domestic animals continued in their wild state, they would have remained to this day like other wild animals that have not lent themselves to domestication.

These great changes have not been confined to greater weight of carcass, and production, for it must be remembered also, that these most perfectly formed domestic animals of today are the direct descendants of the very ungainly looking beasts; and that it is owing to the skill of the breeder that they have been improved in form, beauty, color, symmetry, markings, family characteristics, and all that goes toward producing and perfecting the ideal.

Just now we should like to discover, if possible, what it is that man has done, how he has accomplished these wonderful changes, so pronounced, so wonderful and so beautiful. It would almost seem that these wild animals in their association with men have been like potters' clay, subject to the skilful manipulation of the owner or person who has directed their mating. If man is responsible for all these changes, what agency has he employed? If like has not begotten like in our domestic animals, and the changes are owing to man, when during the life of these animals, has it come within man's power to produce these changes? It would seem if we are able to discover the agency or leverage and the time in the life of the animals when the improvement takes place, we should have the key to the situation; we should be able to discover the secrets of the breeder's skill; in other words the art and science of breeding for improvement.

Let us take one step at a time, and note first the agency employed and, later, the time when it is within the power of man to produce the elevation. I want to go very carefully and very thoroughly into these two questions, for they seem to me to be the very heart and soul of the whole question and the secret of success in breeding.

It was given to the immortal Blackwell, who was born in 1726, and who died as late as 1795, to demonstrate as never before, what could be done by way of moulding and fashioning his animals (cattle), first in the line of earlier maturity, and afterwards, as to easy fattening qualities, beauty, and symmetry — or perfection of form. He also soon began talking about the "increased quantity of the best or highest-priced cuts of meat," "weight in the right place" as he styled it. Finally, finding his efforts in these particulars successful, he began to pay more attention to other matters such as "the barrel form" (well sprung ribs). "The smaller the bone the truer the shape," etc.

It has been claimed by some that the secret of his success died with him; such remarks are heard even to this day. Blackwell is said to have been a very reticent man, which trait probably confirmed the general impression that he possessed some great secret. It was no secret, even granting he might have been pleased to create that impression, it was only a discovery. Not only was the

work taken up by others of his day, but many of his followers even surpassed him. I need hardly mention the name of Booth or Bates, and others who followed so closely in the trail marked out by Blackwell not only in accomplishing all that he has done in early maturity, easy fattening qualities, etc., but in taking more special pains in other matters, such as symmetry of proportion balance, small incurving horns, fineness of bone, color, markings, the quality of the hair, the handling of the hides, etc.; in fact everything that added to the beauty, carriage and the quality of



FIG. 88.—THE DAIRY TYPE.

the descendants, or tended towards producing the most perfectly formed animals conceivable to man.

When we consider the ungainly beasts these farmers and breeders had to start with, and note what a wide gulf now separates the most perfect specimens of the breed from the animals Blackwell had for a foundation, the transition is nothing short of marvelous.

Now as to the agency that made these things possible. In a word it was feed and plenty of it. Blackwell not only laid the foundation of the Shorthorn family by high breeding but he was

also the originator of the Leicester breed of sheep. Succeeding first with cattle, he afterwards applied the principle to sheep with equally good results. He later turned his attention to breeding farm horses, and produced a breed of draft horses that since became the foundation of the present day Shire and Clyde or perhaps I should say became merged in a family of horses from whence both breeds have descended. With sheep and horses as well, liberal feeding was the agency for improvement. Mr. Blackwell had a famous cow called Comely that was slaughtered at the age of 26. He used to point with pride to a single layer of fat taken from her loin and preserved in pickle, that was four inches thick. I need not seek further to confirm the fact that he was a liberal feeder.

Before leaving this question of feeding, and the part food has, and is, exerting for improvement, I desire to continue this question a little further. I have already shown that liberal feeding had been the principal agency for improvement, and that no one who is not a liberal feeder need hope to become a successful breeder.

Native cattle may get on very well on an ordinary farm with ordinary care by an ordinary farmer; but that is not the case with pure-bred animals. It was high feeding and greater care that started the native cattle towards improvement as already shown.

As the different families of domestic animals were started on the way to improvement by liberal feeding, we find it is necessary to increase their food and pay more attention to selection, as they ascend the scale towards perfection. This is why the best bred and most perfectly developed animals deteriorate more easily than others when in the hands of men who take from them the prop, the stimulus that produced them and that sustains them on their elevated plane. When these high-class animals have withheld from them in any degree the extra care and attention that has made them possible, their descendants are seen to decline or degenerate accordingly, and if this degeneration is not arrested somewhere in the descent, the whole edifice goes tumbling down like a cob house to the very foundation.

It has taken, perhaps, a hundred years, to build up and improve a race or family to its present degree of excellence, perfection

and production. The higher the animals ascend the scale, the greater the care necessary to keep them from falling and the greater the fall when once they begin to tumble. So sensitive have these improved animals become, that through neglect, ignorance, or insufficient care, and especially insufficient food, for two or three generations at most, the work of a hundred years is destroyed and we find the descendants of these perfect animals at the bottom of the ladder, usually less valuable, less attractive in looks than natives or grades whose ancestors never reached the giddy height. The road that leads to the top is a long laborious climb; the descent abrupt and swift.

I have often seen this calamity worked out in a would-be breeder's stud herd and flock. He started with the best animals that money could buy, but because he was too stingy to feed, or because he became overstocked and tried to economize in feed, etc., he had, in a few years, at most nothing but weeds and rubbish of his own breeding, as the result.

The amount of food that some of our great dairy cows are able to eat, digest, and assimilate if fed to their ancestors not very far down the line, would probably have killed them. As they have developed in perfection by more and more food, better care and attention, each succeeding generation that makes a move upward is born with a constitution and a capacity that enables them to perform the additional task demanded — that is to say — they perform the same task with greater ease than their ancestors — for they are “to the manner born.”

BREEDING FOR IMPROVEMENT

We now come to the most important point, so far as man is concerned, in seeking to know when in the life of an animal the improvement takes place.

It is difficult to see how this elevation, this change, could possibly have taken place in an animal after it was born. At birth the die is cast. High feeding, and greater and better care may develop the inherent qualities the animal possesses, but can never create them. As a spring is no higher than its source, neither can an animal reach a higher level than its source or the qualities of its sire or dam. Thus we must go further back than the date

of birth, to find out from whence, and when, the improvement takes place. Personally, I believe that to whatever degree of perfection an animal attains after birth, above that of its ancestors, it inherits the impetus to carry it to that higher level, prior to its birth. Extra feeding may develop that acquired characteristic, but can in no way produce it.

I believe it is safe to say that when an animal is, for instance, a better producer than any of its ancestors, it received the necessary training or schooling from its mother before it was born. The treatment of the dam, the extra feed she is induced to consume during the period of gestation, educates her offspring, or surrounds it, with conditions that leave an imprint, or a greater tendency, greater proficiency to accomplish with greater ease the demands made of the mother during the period of gestation. Thus, an elevation has been produced. Like produces like only when conditions remain the same. Remove animals with small horns, thin hides and short coats to a much colder climate, and in one generation their descendants will have longer coats, longer horns and heavier hides. Bring these back to warm climates and the descendants return to their normal development in these particulars. They do not acquire these changes after they are born. It was the imprint of a changed condition transmitted to the offspring before it was born. The Holstein breed of cattle in their native land are fed on low, wet ground and quick growing grasses in the summer, and on best pulp and roots with a little hay during the winter. As a consequence they give a large quantity of milk, but which is very low in butter fat, the average probably being less than 2.75 per cent.

No one, to my knowledge, has succeeded in feeding a cow in any way that she has perceptibly increased the quality of butter fat in her milk. Extra feeding may increase the quantity several times, but it has little effect upon the quality. A cow that is born a 3 per cent. animal, lives and dies a 3 per cent. animal. When these 3 per cent. cows are brought to this country, it often occurs that their daughters develop animals that give much richer milk, until we find their descendants in a few generations giving 4, 5, and even 6 per cent. fat. If fat cannot be fed to them after they are born, it must have been bred into them before they

were born. The fact, as I see it, is simply this: That by feeding the 3 per cent. cows on richer and more concentrated feed than the animals receive in their native land, the unborn calf has been educated (if I may use the term in this connection), during the period of gestation to make a better use of the food consumed than the dam; thus, a variation has taken place that amounts to an elevation in the scale of production. The lever that caused the advancement and change in the system of the unborn calves was the change to richer food for their dams. The change or

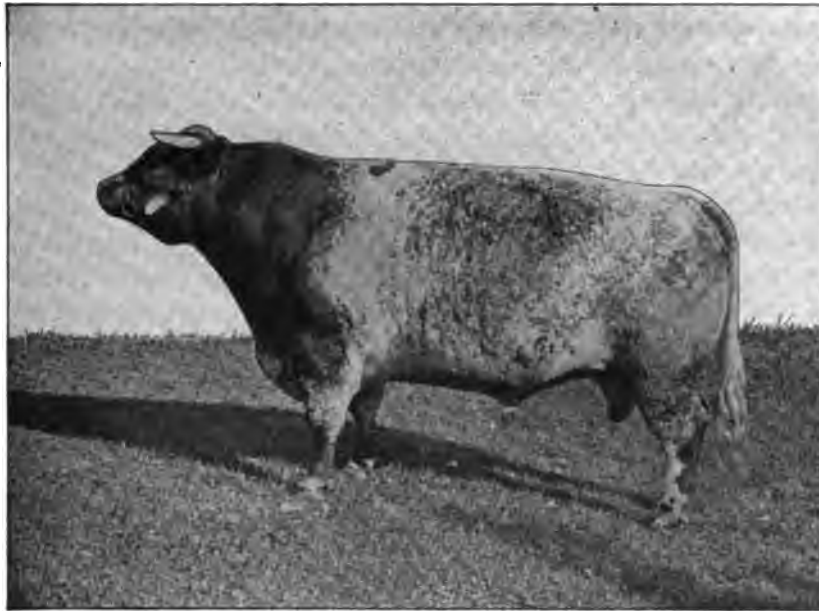


FIG. 89.—THE BEEF TYPE.

elevation found afterwards in the calf was made during the period of gestation. Thus, an animal was born, better suited to the changed conditions surrounding the dam prior to its birth.

If this is a reasonable hypothesis (and I see no other way of solving the riddle) then we have a line of procedure, a reliable foundation, on which to build a scientific truth which only requires to be put into execution to produce results more far reaching than any rule or system of breeding that has yet been conceived by man. For my own part I believe thoroughly in this law.

I am well aware it is no new thought, and that some are found to challenge its correctness. The fact that breeders have never attempted to act on this principle, and that their cattle improved in spite of their not attaching any value to it, is no proof whatever that the law does not exist.

I have never, since coming to the above conclusions, raised a colt or a calf that I did not always keep in mind the fact that I must do all I could, during the period of gestation, to help the dam transmit to her offspring a constitution better suited than herself to meet the requirements and improvements in demand. That animals differ wonderfully in their ability to educate or elevate their unborn, I have no doubt.

This brings us to one of the most important questions, as well as one that is less understood or appreciated than any other. I have already shown how all our domestic animals have descended from wild animals. What we as farmers and breeders generally fail to comprehend is, that our horses, cattle, sheep and swine in their wild state, were, in comparison with our improved breeds, most ordinary, and (in respect to cattle, sheep and swine) most ungainly looking beasts. The point we neglect to keep in mind is, that these ungainly looking animals were the ancestors of our most improved families of farm stock, and that there is ever present in all our high-class animals a tendency to revert to the original type.

It has only been about two hundred years since any special effort towards breeding for improvement began. I trust the reader will keep this fact well in mind throughout all the discussions that are to follow, and furthermore, that back of these 200 years or so of breeding for improvement, there are hundreds and thousands of years during which time these breeds remained practically stationary, the same as other wild animals that have not come under domestication. I have already attempted to show how easy it was for an animal to deteriorate on account of poor soil, insufficient food, or neglect. It may have been thought at the time by some of my readers that I was laying too much stress on the question of quality and quantity of food necessary to keep up the improvement. But when we come to consider the common ancestry of these improved animals, and take into account the

short time improvement has been going on, we may understand how unstable is the improvement man has produced since these animals have been subject to his will.

Originally our domestic cows gave only sufficient milk to rear their young. The cows like the bulls, were formerly used only for agricultural purposes, to plough and till the ground, but later on their milk began to be used for food. Whatever difference in yield, symmetry or beauty of form, earlier maturity, etc., our best specimens now possess over their common wild ancestry; that much they are artificial, that much they have been elevated above the normal condition of their improved ancestry. I have already dwelt on the part food has played as the principal agent in breeding for improvement, and the time (prior to birth) that this improvement takes place. I now come to consider the process of evolution that makes these improvements possible.

When a calf, for instance, is born which develops into a cow that is more easily fattened, shows earlier maturity, is more proficient and economical in the production of meat, has smaller horns a more beautiful head, a more perfect top line, more grace and symmetry of form, gives more or richer milk than any of her ancestors, a variation, however slight, has taken place in the race. This is, as already shown, an acquired characteristic; acquired by some different or unusual treatment surrounding the dam during the period of gestation. The same care and treatment to other animals produce like results. A bull born of these animals that also has received from his dam, the same tendency that developed the acquired characteristics noted in the daughters of cows similarly fed and treated. As I have already said the feed that is now consumed without the least inconvenience to the animal, as noted in our improved breeds of cattle, sheep and swine, would have killed their original ancestors. But as time goes on, the descendants of these improved animals, acquire through the schooling or environment of their dams during the period of gestation, a more suitable digestive organization, more powerful machinery to do the work demanded of their dams, and do it easier. It takes generations to accomplish this upbuilding. Sometimes, as in the case of overfeeding for greater production, we no doubt overdo it, and the calves from our greatest producers

instead of inheriting great ability or stronger constitutions are weakened thereby. At least, few cows with phenomenal records have ever left daughters of equal merit.

These improved animals are mated with each other, until finally the variation, the acquired characteristics, become dominant, and so on until they become so stable that a simple variation is turned into a dominant one and thus becomes a transmittible characteristic. This sounds all reasonable and looks as if improvement could go on like simple addition, but such is

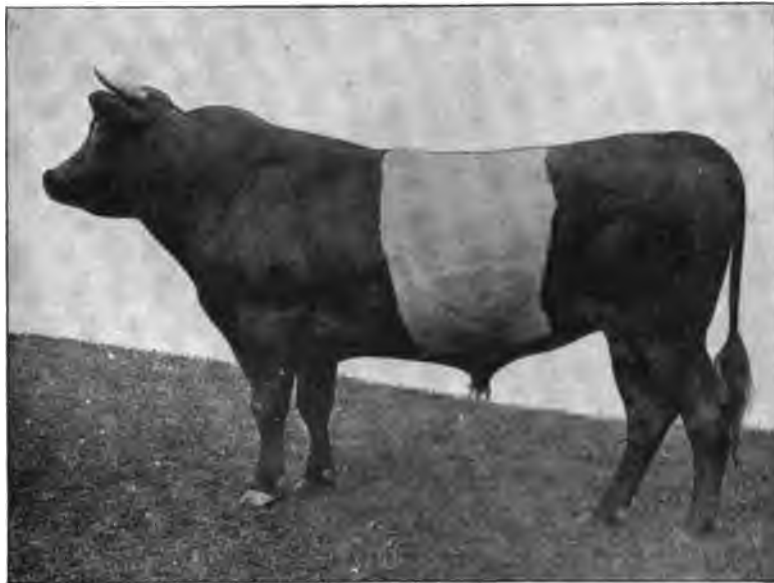


FIG. 90.—ILLUSTRATING BREEDING FOR PECULIAR MARKINGS.

not the case. There are a great many “ifs” and “buts” and other hindrances in the way, such as unprepotent sires; dams with the variation but unable to produce it; others that can transmit it with some sires and not with others, and so on, complication after complication, wheels within wheels, sometimes disappearing altogether for several generations, and then breaking out in a single cow or bull more pronounced than ever; sometimes greatly assisted by “in-breeding,” again wiped entirely out by that same process.

Sometimes a bull bred to one cow will produce a champion winner; bred to the full sister will produce a weed. Sometimes a champion cow bred to a champion bull will produce such degenerate or reversion of type that it never should be allowed to reproduce itself.

If a variation has taken place, and if a uniform process of feeding, and the same care and management continues long enough in a herd, or the same general system of feeding is carried on in a community; it is only a question of time, when, as I said before, these variations or acquired characteristics become stable enough in the blood to be transmitted to animals in foreign countries, so stable that they may be depended upon to be reproduced in the descendants of native animals even down to the second, third and fourth generation. High feeding still must be maintained, however, for breeding without it is of little or no avail. So little in fact that, except with some especially prepotent sires, mere breeding plays but a minor part. The point I wish to emphasize right here is this: That all improvement of domestic animals above their original ancestry is accomplished by producing variations and then engrafting them into the blood, until finally they become fairly well established and capable of transmission.

I wish also to emphasize the fact that these acquired characteristics are most fragile, and the art of breeding a most delicate one. The process, as previously noted, may well be compared to the building of a cob-house, to preserve the equilibrium and harmony of which, requires the greatest care and the utmost skill. The higher the structure ascends, the greater the skill required to keep it from falling. The best herdsman and the best breeder in the world will find cobs falling off from time to time. It is a good breeder who can maintain a herd of well-bred animals without any backward tendency, but it takes an artist, a professional breeder, to keep on improving, and even then he can only hope to occasionally succeed.

My business takes me several times a year among the best breeders of Great Britain. I find at a certain farm this year a "topper," a prize taker; I may go there again for the next three years or more before finding another as good.

It seems to me that much of what I have said so far has been

discouraging. I see no object in saying anything but the truth. My highest ambition is, to make real breeders of high-class farm stock in this country. We shall be obliged to go to England for all time for the highest productions of the breeders' skill, unless we come to thoroughly understand and appreciate what it means to be a breeder. When the farmer once realizes what it means, he will find it the most fascinating and lucrative branch of the agricultural profession. I feel it is much better for the would-be breeder to see first of all the difficulties of the task, than to have to find them all out by means of that hard task-master, personal experience.

What makes good, high-class breeding of farm stock possible? A fertile soil, abundance of feed, a liberal feeder. To this must be added a natural love for domestic animals, which makes a good caretaker; these, together with an eye for perfection in animal form are the principle qualifications a man must have in order to breed successfully.

ADVANCED REGISTRY WORK

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There are two things that a breeder of dairy cattle wants to know about his herd. First, what his cows individually are capable of producing; second, how to perpetuate the most productive strains. Most farmers are unable to make headway in retaining or perpetuating productivity because they have no real knowledge of what their cows actually do.

In the history of breeding, one fact stands out pretty clearly: Men, sooner or later, get about what they want. When a bacon hog was wanted, somebody succeeded in getting it. When a two-minute trotter was wanted, the horse responded. When a polled beef animal was wanted, the right sport appeared and succeeded in perpetuating itself. When the millers of England realized, a few years ago, that they wanted a rust-resisting, up-standing, free-milling, high-producing wheat, they deliberately employed an expert in cereal husbandry to breed a new variety adapted to English soil and climate. Today they have two varieties, instead of one, both of which meet the conditions. The discovery of either would have meant millions of pounds profit for farmer and miller and the finding of two varieties, one suited to the lowlands, the other to the higher ground, is a double bonanza for all concerned.

In the breeding of dairy cattle we have succeeded in getting and perpetuating a certain type in all the leading breeds. Compare the Jersey of today with the "Alderney" of fifty years ago. Look at the Ayrshire of the present show ring and then think of the cow bearing that name a generation ago. It is obvious that somebody has wanted the fine head with its in-curving horns and has succeeded in breeding the type upon the Jersey. The up-standing horns and the square udder of the Ayrshire are just as characteristic, and have been bred into the animal within our memory. Men have seen the beginnings of these characteristics and have deliberately planned to fix them. In a general way the dairy type

common to all breeds has been built up within comparatively recent time. The end has not been reached; it probably never will be so long as men want some new thing. But it seems to me reasonable to suppose that in time breeders will succeed in fixing the characteristic of high production in the dairy cow as surely as any other desired trait.

The fixing of a pure strain depends on the recognition of dominant characters and persistent breeding in that line. The reason why it is so easy to fix the up-standing horns, or black points, or white hair, is that these characters are to be seen in both sire and dam. Any one can be sure of these facts. In such cases the fixing of a pure strain depends on wise selection of mates and persistent breeding in line. Given these conditions success will ultimately come to somebody. When one tries to develop a pure strain of high milk producers, however, that shall be rich in butter fat, the fundamental facts are not so patent. In the first place one cannot be sure of the prepotency of the sire; he is a very wise man who can see milk and butter fat in a bull. In the second place we have had, until recently, no accurate basis for judging the productivity of a cow. To be sure, it has been possible to weigh milk for centuries but not many breeders have taken the trouble to ascertain in such a simple way just what their cows have done in a year or in a lactation period. So long as it was impossible to judge accurately the quality of the milk produced by any animal, it was hardly worth while bothering much about the quantity. So dairymen went on their way rejoicing in the sense of sight and all the time deluding themselves in thinking that they could see milk and butter fat in about the same way that they see nose and horns and hair. The outcome is quite comparable to what might be expected if blind men had been directing the breeding of dairy cattle during the past two hundred years. Blind men always talk as if they had sight, but I doubt if their kind of vision would help them materially in fixing or perpetuating the black and white Holstein, the yellow Guernsey, or the spotted Ayrshire. Some qualities of the dairy cow can be tested by sight and some by touch, but others, notably the production of high grade milk, require the weighing scale and the Babcock test. Indeed, not until Professor Babcock announced his discovery was it pos-

sible practically to test both quality and quantity in milk production. That discovery was epoch-making because from it we date the possibility of fixing a pure strain of milk producers. Some day, I believe, the world will put this discovery with a few others like the friction match, the steam engine, the telegraph and telephone, which mark revolutions in our civilization.

The significance of the Babcock test was quickly seen by some of the pure-bred dairy associations. They proposed a scheme for getting at the production of cows both in milk and butter fat which should be as nearly accurate as practicable. The cow's record is supervised by some competent authority, usually a representative of the nearest agricultural college, and the results are published in an advanced registry maintained by the official association of the breed. These advanced registry tests are for seven or thirty days (as with Holsteins mostly) or for the calendar year (as in all breeds). The record gives the quantity of milk, its butter fat content and the feed consumed. Such records when properly made are reasonably accurate and vary from the true performance by only a few pounds. While they are all of recent date, the majority having been made within the last five years, these advanced registry records furnish the only accurate knowledge of a pure strain of heavy milk producers rich in butter fat. Hitherto breeders have guessed at these facts; from now on they have facts at their command.

The first, in my opinion, and most importance service of advanced registry work is to supply the knowledge prerequisite to the development of a fixed type in milk productivity. With such knowledge it seems to me reasonable to hope that some able breeders will in time do the rest. When that is done the last excuse will vanish for having dairy cows that do not pay their way. It ought to be as easy to fix the minimum production at 10,000 pounds of milk and 500 pounds of butter fat in a year as to fix the type of horn or hide or hair. I believe that it will be done within a generation.

The second great advantage in advanced registry work is its reactive effects upon the man who does it. It is something to know just what a cow is capable of doing. Some think this is the main thing. In fact, the surprises are so numerous that one is tempted

to overlook more remote ends, but the gain is only temporary if the advantage cannot be perpetuated. Still, the immediate ends are quite worth while. One comes to know individual cows and to distinguish the good from the bad and indifferent. Anyone can do this; it does not require the presence of an official supervisor nor does it cost much in time or money. One thing is sure — anyone who does it will never regret the time or money.

The greatest gain from advanced registry work comes to the owner of pure-bred cows. He is interested both in performance and inbreeding; if he is not, he has no use for pure-bred animals. But many owners of pure-bred cows fear to undertake the test. The rules look formidable and the outcome too much of a gamble. To encourage the faint hearted I have been asked to give my own experience with a small herd of pure-bred Guernseys. The following account of my first year's work was published in the April number, 1913, of the Guernsey Breeders Journal (Peterboro, New Hampshire).

"The charge is often made that the cost of advanced registry work is prohibitive to the average farmer or to the owner of a small herd. Before I entered upon it I shared in the feeling, sometimes expressed by the inexperienced, that the advanced registry is a nice plaything for the agriculturist but too risky and expensive for the farmer. I had been accustomed to weigh my milk and to make the Babcock test at intervals. I knew therefore or thought I did, what my cows were doing. What more could I hope for? After a year of trial I propose to tell my story of what actually happened. If I do not get it all down, I shall be glad to tell the rest of it if the questions are put to me.

"I purchased my first pure-bred Guernseys six years ago — a bull calf and a yearling heifer. They looked so good to me that within six months I bought two more heifers and one two-year-old in calf. Two years ago I imported three heifers and bought another young bull. These were the foundation of my herd, costing all told, \$2,075. I now have, barring deaths, accidents and sales, a total herd of twenty. This is the limit which I have set for myself. The toll from accident and death has been heavy, one a year, but fortunately of a kind that leaves no trace. My herd is tuberculin tested, is now and always has been free from

disease. The sale of surplus stock has been limited to bull calves, excepting one young cow sold since she completed her A. R. test, and a two-year-old bull. The total income from this source has been \$2,200.

" Since beginning advanced registry tests in September, 1911, twelve cows have come into milk and all have been entered. The following statistics relate to these cows up to January 1, 1913. At that time three were still under test and nine had completed their records within the previous three months. Inasmuch as I propose to test all my cows as rapidly as they come into milk, I can see no better time to cast my accounts than at the end of December, 1912.

" The table on following page shows the feed consumed by each animal, its cost, the production of each, and the value of the milk.

" The amount of feed given is an outside figure. No account was kept of waste, which, particularly in hay and roughage, was always something. Probably the charge for hay is one-third too great.

" It will be seen that the cost of feed is abnormally high. That is the penalty of farming within thirty miles of New York City. On the other hand, the receipts are correspondingly better. I give the facts as they are and let others draw their own conclusions. Cream only was sold, and some of it sold at a rate higher than that given in the table. Skim milk was fed to calves, pigs and chickens. The value is set at 25 cents per hundred pounds. In the cash account given below, manure is credited at the commercial rate which is probably too low considering the feed consumed. The expense account is also abnormally high because I have found that while I could not get on with less than one herdsman and a helper for milking, the two could easily have cared for twice the number of cows. So, too, with other items; the relative expense would have been much less with two or three times the size of my herd. But I give it as it stands on my books, making liberal estimates for some uncertain items. No account is taken of depreciation because the work of the year has added enormously to the value of the herd. If any notice were taken, it would appear as a credit. For example, the calves sold early would have brought twice as much if they had been kept till their dams'

records were known. As it is, I have given the value of the calves at what I sold them for or what I could have sold them for at any time. It is probably true that two of the cows would sell for more today than the entire herd before they were tested. Hence, the items counted err, if at all, on the conservative side.

CASH ACCOUNT FOR THE YEAR

INCOME

Cream at 50c lb. for butter fat.....	\$2,888 13	
Skim milk at 25c per 100 lbs.....	245 07	
Manure at \$30 a cow per year.....	340 00	
Twelve calves	2,175 00	
		\$5,648 20

EXPENDITURES

Feed as per table, pages 378 and 379....	\$1,449 81	
Care 1½ men at \$48 per month, including board at \$16 per month.....	720 00	
Depreciation on stable, ice house, dairy, and equipment at 10 per cent.....	520 00	
Ice and dairy supplies.....	72 00	
Veterinary	12 00	
Fuel for dairy house.....	55 00	
A. R. tests and re-tests at \$9.....	180 00	
Board of testers.....	40 00	
Entry fees and A. R. certificates.....	120 00	
Clerical work	48 00	
Advertising	28 00	
		\$3,264 81
Profits on twelve cows.....		\$2,483 39

"The record shows that one pound of concentrates was fed for each 2.6 pounds of milk. It cost me for feed \$1.22 to produce 100 pounds of milk, and 25 cents for a pound of butter fat. These rates are of course excessive, but if I were situated as the average farmer is so that advantage could be taken of feeds produced at normal rates, these charges could be materially reduced. As it is, I have only twenty-two acres of tillable land. Four acres are planted in rotation to corn for the silo, four to oats and peas for hay, and eight to clover and alfalfa. Of the remainder, three or four acres are reserved for soiling crops. This gives a succession of green feed throughout the summer and early fall when the pastures are poor. No grain of any kind is grown. Pasturage is ample at all times for young stock, and in the early summer and late fall quite satisfactory for milk cows. But no sane dairyman would ever select my farm for the economical production of

milk. It seems to be a good place, however, to grow young stock and affords at all times sufficient provocation to the owner to wrestle mightily with the handicap supplied by nature. The only compensation is in having a good market—otherwise it would be a losing business. As it is, the milk produced pays for the keep of the herd and I have the surplus stock as a profit. Hence the necessity of having cows that yield well and whose calves find a ready market. A herd that can pay me a profit, surely will be profitable anywhere.

"Now as to the advantages of advanced registry work. I knew before I began it that I had a good herd, but the one thing I did not know was that some of my cows were worth three or four times as much as others. I did not know that Masher's Elsie was a better cow than Goldie Elsie. In fact, I did not know that the Elsies were any better than the Belles. Such ignorance is dangerous. A year ago I offered for sale two cows (the two which I thought the poorest) but at a price which precluded a sale. The year's experience shows that they rank high and are worth to me fully twice what I proposed to sell them for. That shows just how much the weighing of milk and occasional private tests were worth to me. If one really wants to know what his herd is good for let them be subjected to the A. R. test.

TABLE SHOWING EXPENDITURES FOR FEED AND INCOME FROM MILK

	Age in years	Mixed feed at \$32 ton	Beet pulp at \$30 ton	Roots at \$6 ton	Silage at \$4 ton	Green feed at \$3 ton
Indian Belle, 22275.....	5	4500 \$72.00	1140 \$17.10	1820 \$5.86	5070 \$10.14	4480 \$6.72
*Brighton, 20742.....	2	3940 63.04	975 14.62	1575 4.72	4600 9.20	4610 6.92
*Masher's Glenora, 29778.....	2	3940 63.04	975 14.62	1575 4.72	4600 9.20	4610 6.92
*Caruga Belle, 29774.....	2	3940 63.04	975 14.62	1575 4.72	4600 9.20	4610 6.92
*Glenora, 24984.....	3	3907 62.51	615 9.23	1720 5.16	4580 9.16	4990 7.45
Imp. Granny, 24947.....	2	3725 59.60	1030 15.45	1550 4.65	4825 9.65	4260 6.39
*Onida Belle, 24985.....	3	4415 70.64	1110 16.65	1340 4.02	4940 9.88	4470 6.70
*Masher's Elsie, 24986.....	3	5520 88.32	1260 18.90	1620 4.86	5930 11.86	4200 6.30
Golden Elsie, 23744.....	4	5554 88.86	1295 19.42	1620 4.86	5930 11.86	4200 6.30
Imp. Rosie 2nd, 34945 (for 211 days).....	3	2815 45.04	975 14.62	1700 5.10	1700 3.40	3810 5.76
*Golden Elsie 2nd, 33422 (for 202 days).....	2	2945 47.12	875 13.12	1800 5.40	2100 4.20	3210 4.82
Imp. Glory 2nd, 34946 (for 102 days).....	4	1110 17.76	290 4.35	1840 5.52	2120 4.24	200 .30

* The seven oldest daughters of King Masher, 11084.

TABLE SHOWING EXPENDITURES FOR FEED AND INCOME FROM MILK — *Continued.*

	Hay at \$20 ton	Total cost	Milk (Lbs)	Fat (Lbs.)	Cream at 50c. per lb. fat	Skim milk at 25c. per 100 lbs.	Total income	Income less feed
Indian Belle, 22275.....	2880 \$28.80	\$140.62	11,797.20	490.92	\$245.46	\$24.58	\$270.04	\$129.42
*Brightness, 30742.....	2710 27.10	125.52	10,090.00	553.28	276.64	21.00	297.64	172.12
*Masber's Glenora, 29775.....	2710 27.10	125.52	8,952.60	408.17	204.08	16.15	220.23	94.71
*Cayuga Belle, 29774.....	2710 27.10	125.52	9,820.60	469.27	234.63	20.46	255.09	129.57
*Glenellen, 24964.....	2850 28.50	122.01	9,431.00	515.04	257.52	19.65	277.17	155.16
Imp. Granny, 34947.....	2740 27.40	123.14	9,081.85	437.58	218.79	18.92	237.71	114.57
*Oneida Belle, 24985.....	2750 27.50	135.39	11,183.30	572.94	286.47	23.30	309.77	174.38
*Masber's Elsie, 24986.....	3510 35.10	165.34	14,458.80	745.75	372.87	30.12	402.99	237.65
Golden Elsie, 23744.....	3510 35.10	166.40	15,082.35	692.87	346.43	31.42	377.85	211.45
Imp. Rosie 2nd, 34945 (for 211 days).....	1325 13.25	87.17	7,528.30	355.87	177.93	15.68	193.61	106.44
*Golden Elsie 2nd, 33422 (for 202 days).....	1415 14.15	88.81	8,248.50	394.55	187.28	17.18	204.46	115.65
Imp. Glory 2nd, 34946 (for 102 days).....	1220 12.20	44.37	3,171.90	160.07	80.03	6.61	86.64	42.27
Totals.....		\$1,449.81	118,836.30	5,796.31	\$2,888.13	\$245.07	\$3,133.20	\$1,683.39

* The seven oldest daughters of King Masber, 11064.

"It will be said by some, I suppose, that good work can not be done with a simple equipment. My answer is that my plant is about as simple as it can be made. My stable is 34x40 feet, giving two rows of ten stalls each. It is built with a driveway and haymow above. The side walls have two dead-air spaces, with plenty of double windows. The floor is concrete with cork brick bed. A small feed room opens at one end into the feeding alley, and at the other end is a covered shed 32x64 feet in which is a watering trough. The King system of ventilation is installed and it works. The plans were my own and the work was done by the day by country carpenters. The entire outfit cost me \$3,500. A bull pen with fencing for a paddock of 1 $\frac{1}{4}$ acres, and an ice house and milk room cost \$1,200 more.

During the test my cows had only ordinary care, such as could be given by one man who also had to bring in the green feed in summer, care for the calves, etc. For a greater part of the time all cows were in stanchions, although I did eventually construct a small box stall for one cow by filling in the gutter and turning the space of two stanchions into one.

"Aside from giving the test cows all the feed they would eat up clean and keeping an eye open to see that no one had too much,

I know of no secrets in the work. Neither I myself nor any man on the place had had any experience with advanced registry work. We tried a good many experiments with rations but aside from finding out that some cows did better on one mixture than others we made no great discovery. We have all learned something during the year, but my belief is that any intelligent herdsman can put himself in the way of finding out what his cows can do. High production demands first of all good cows — cows that have it in them to give good returns and that have been reared in such a way as to give them the constitutions to withstand high pressure. One can not starve cows during two years and expect them to show good results in the third year. Next I would place wholesome surroundings — good ventilation, plenty of water, protection from flies, and reasonable care and feeding. Finally the man, not only behind the cows, but in front of them as well. With these conditions adequately met, a herd should make good response. Perhaps there are refinements in care and feeding of which I know nothing, but if such there be, I am certain they are not easily found among men who have yet to begin advanced registry work, or among those who can be hired for \$32 a month.

“ While I have asserted my belief that the advanced registry test will pay any man who has a good herd — perhaps pay best of all the man who has a poor herd if he thereby gets rid of his star boarders — the question still remains, is it an economic proposition? Does one year’s test give a fair estimate of a cow’s production? The obvious answer is — yes and no. It certainly tells something of the cow’s maximum ability but it does not tell the full story of her ordinary working ability. The full story would include the results of two successive calendar years. Some day, I fancy, we shall apply such a test. If a cow gives milk twelve months of one year and is dry five or six months of the following year, the first year’s record is misleading. Put the two years together and strike an average; then you have a closer approximation to the truth. I propose to keep account with my cows during this second year. If the results seem worth while, I shall be as willing to publish them for the information of those who want facts concerning advanced registry work as I am to give here the outcome of the first year’s trial. The advanced registry

must stand or fall on what it legitimately does in the advancement of practical dairying. In the long run, all deception and distortion must yield to an honest interpretation of the facts. My statement may not be in all respects creditable to my judgment as an economist, or flattering to my ability as a dairyman, but it opens the way to confession by those who know better than I what to do and who are more successful in doing it."

THE BIRTH AND REARING OF THE DAIRY CALF

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It ought to go without saying that before the discussion of how to rear the calf comes the question of having the proper kind of a calf to rear. Granting the occasional remarkable excellency of some "native" cows — animals of unknown or promiscuous breeding — yet there are incontestible reasons why every man who raises a calf today should see that it is sired by a pure-bred bull of one of the recognized dairy breeds. Bull calves of creditable breeding can now be purchased at very moderate prices, but if the owner of a small herd feels that it will not pay him to maintain a pure-bred sire he ought at least to arrange to breed his best cows to such an animal. This is not an assertion that every farmer ought to straightway establish a pure-bred and registered herd. There may be reasons financial and otherwise why this is not practical. It is not at all certain that every farmer should be advised to become a breeder of registered stock but there are good, sound reasons why every man who is keeping cows and rearing his own calves should expect to persistently build up his herd toward some one breed type.

There are three main reasons for so doing. One is that real progress in developing dairy ability has come only as men began to work along pure-bred lines, because it is surely true that the pure-bred animal is more apt to transmit its characteristics to its offspring than is the case with the animal of mixed or diverse strains of blood. Then too it is only by such systematic and continuous record keeping of pedigrees, as is carried on by the various registry associations, that we are able to have any accurate knowledge of the dairy capability or relationship of the ancestors of our animals.

A second reason is, the mere fact that an animal has the markings and general appearance of any one of our dairy breeds gives her a selling value decidedly higher than an equally good indi-



FIG. 91.— WELL-CARED-FOR CALVES.

vidual which did not possess the characteristics which indicate a preponderance of any particular blood. For example, a cow that is spotted black and white with the general appearance of a Holstein will bring at least ten dollars more than one of equal excellence but lacking the indications of definite breeding. The same statement will be even more markedly true as applied to the grade Guernsey.

Then there is a third reason for building up the grade herd and that is the moral effect on the owner. There is no doubt that the man having a herd of cows which are alike in color, conformation and general character will feel a certain pride of ownership different from that which he could hold toward a "calico colored" herd, and this would mean in the end better care and more intelligent dairying.

Having once started upon the policy of using a pure-bred male, it seems almost unnecessary to add this word of earnest advice; namely, unless there seems to be the best of reasons for a change we should stick to that breed persistently year after year. It should be clearly understood that changing the breed every time a new sire is purchased will mean in the end only confusion, without any real progress in herd building.

Another factor in the selection of a calf which ought not to be forgotten is that the calf born of a mature mother and if possible of a mature sire as well, is more apt to possess the size and vitality which will insure a thrifty youngster and a profitable cow.

All things considered, the most desirable time of year to have the calf dropped is in the fall — September or October. The reason for this is that the calf born at this time of year is more apt to receive proper attention during the first six months of its life. During the stabling season it is the business of some one to be at the barn almost continuously and there is much less danger of neglect in the matter of feeding, watering and keeping its quarters clean. Of course it is easy to say that the good dairyman will not neglect his calves at any time, but on the farm of the busy man who keeps no regular herdsman and has himself more than he can do, the calf stands a much better chance of good care in midwinter than in the harvest time. Moreover there will always be the temptation to turn the spring calf out to grass when a few months old which is about the worst fate that could befall it.

Having then the calf that is "well born," the next question is its rearing. From a hygienic standpoint, there is no better place in the world for a calf to be dropped than on a clean, grassy pasture, because if some of the early troubles of calves are due to germ infection, this is the place most likely to be free from it, but of course this place is out of the question in cold or stormy weather.

There is little doubt that the calf had best be left with its mother for the first twelve or twenty-four hours. It is a theory which seems reasonable that the colostrum — the first milk given by the cow — has the specific function of unloading the bowels of her new born offspring. On the other hand it is well to take the calf away after twenty-four hours because if left continuously it may take milk far beyond its ability to digest.

Under conditions that sometime prevail and that seem beyond our control, the first few days of a calf's life is a period of uncertainty and peril. In the aggregate, great numbers of calves perish from bowel trouble of two or three different kinds for which there are various names, like "white scours" or "calf cholera." This is not the place to discuss the technical medical aspects of these diseases. It is pretty generally agreed, however, that there are at least two types of the trouble — one a specific, infectious disease usually occurring soon after the birth and generally fatal; the other a diarrhea or dysentery due to over feeding, unclean pails, exposure to cold or other causes leading to indigestion. The writer has had calves born where every possible precaution has been taken and yet they have died within forty-eight hours, so we can not escape the conclusion that some calves are born with the germs of the disease in their system. But on the other hand, plenty are born right that either die or become poorly because of lack of care in feeding. The tablets of the law regarding feeding calves have at least four great commandments. Very briefly summed up they amount to this: Young calves should be fed limited amounts of milk at least three times a day, at regular periods, out of a clean pail, at just blood heat.

In most cases the animals of the farm are to be fed practically all they will consume, but this emphatically does not apply to the milk fed to a calf. The amount must be sharply limited if we are

to avoid overloading the stomach, with consequent digestive trouble. As a general rule four quarts of milk per day for the first few days will be sufficient for the smaller breeds, or six quarts for a big, vigorous Holstein.

If the calf were running with its mother, it would nurse a little milk every few moments while awake and we ought to at least approximate this frequent feeding so far as possible, which will mean three or four times a day. The calf will do much better on this restricted ration of milk than if fed so much as to bring on a chronic condition of indigestion and bowel trouble. The first thing to do on the appearance of any "scouring" is to reduce the milk ration even if the calf does not seem half satisfied.

The ideal feed is full milk, but at present prices the cost is almost prohibitive if continued beyond a few days. By the end of the first week it is allowable to begin to substitute part skim-milk and at the end of three weeks the full milk may be entirely withdrawn. The best substitute for butter fat is ground flaxseed but it must be fed cautiously because of its markedly laxative effect.

It hardly seems necessary to urge the use of clean feeding pails or troughs. The stomach of a calf is not suited to take care of all the bacterial growth that flourishes in a sour garbage can. We may take a lesson from the scrupulous care and cleanliness found necessary in the bottle feeding of infants.

Nature designed the stomach of a calf to take milk that never varies from the exact body temperature of the cow — just about 100 degrees — and it will be best to use a thermometer to determine this for the first week.

It is impossible to over-emphasize the importance of getting calves to eat dry hay and grain as early as possible. Once a calf has learned to eat solid food freely, the danger of bowel trouble is practically over. They vary greatly however in the age at which they will learn to eat; some hardy, vigorous youngsters will eat like little cows at two or three weeks while others are very slow to begin. From almost the first a little of the finer part of the ensilage and some early cut hay should be kept before them. They may be encouraged to eat by putting a pinch of meal in the bottom of the pail at feeding time, but as soon as possible they should learn to eat it dry. A good grain mixture is two parts of fine

wheat middlings, two parts of ground oats and one part of oil meal. As soon as they eat freely, coarse bran should be substituted for the middlings. For the first three or four months this mixture may be kept before them at all times; later, some of it may be withdrawn so as to make them consume a larger proportion of roughage. There is surely no period of their life when abundant grain feeding will pay better than the first year. The only thing they should ever be scantied on is milk. Skim milk is sometimes so plentiful and is so well relished by the calf that it is fed to excess. Too much leads to indigestion and keeps the calf from eating as much hay and grain as it should. It is important also that the quarters be kept cleaned, dry and well bedded.

A calf can be grown faster if it is kept in the barn until at least a year old. However, a calf well cared for during the winter will be ready to go to pasture the following May, and while it may not be as fat and sleek in the fall as if stabled all summer, yet the cost of its growth will be much less and the summer at pasture ought to give opportunity for the storing up of vitality for her hard work as a cow in the years to come.

The well-grown heifer may properly be bred so as to come into milk when about two years old, and there is no time when good feed and care is more important than during the first lactation period, for then she is laying the foundation of her future career as a cow. It will be wise to let some six or nine months go by before breeding her again in order that the habits of lactation shall be firmly established and that she shall not be asked to exhaust herself by increasing her own size, giving a flow of milk and providing for an unborn calf all at the same time. After her second calving she may be expected to enter upon her life work as a vital machine whose functions it is to turn rough raw material into the finished product — milk — and incidentally to reproduce itself each year.

THE COW TESTING ASSOCIATION, THE SOLUTION OF ECONOMICAL MILK PRODUCTION

A. J. NICOLL, Delhi, N. Y.

Farmers' Institute Lecturer



The New York farmer who is producing milk is aware that at the present day it is much more difficult to make a profit from the herd than in former years; yet few realize that the cost of producing milk has doubled in the last fifteen years. Since the price at which the product is sold has not increased in like proportion it becomes necessary for the individual cow in the herd to produce a much larger quantity of milk and fat from the same quantity of food in order to make a profit for her owner. There are many unprofitable cows; this is the reason that we hear in recent years so much about the boarder cow. At the present time without doubt one-third of the cows are not profitable to their owners.

The following tables show the increase in the price of grain feeds in the last fifteen years at Delhi, N. Y., and the Borden's price of milk at the Delhi station:

Kind of feed	1898	1913
Hominy feed	\$16 00	\$31 00
Corn meal	18 00	34 00
Gluten meal	16 00	32 00
Cottonseed meal	23 00	36 00
Corn and oats.....	21 00	35 00
Wheat feed (bran).....	16 00	30 00
Middlings (wheat)	20 00	35 00
Ground oats	23 00	35 00
Boston wheat feed.....	17 00	29 00
Linseed meal	28 00	37 00

Increase in fifteen years, 69 per cent.



Bordens' flat price for milk	1898	1913
January	\$1 35	\$1 75
February	1 30	1 65
March	1 20	1 60
April	1 00	1 40
May	85	1 15
June	1 70	1 00
July	80	1 25
August	1 00	1 35
September	1 20	1 50
October	1 30	1 90
November	1 30	2 00
December	1 35	2 00
Average price for year	\$1.1125	\$1.5458

Increase in fifteen years, 39 per cent.

Taking into consideration the increase in the price of roughage and labor and the increase in the value of cows, which makes a like increase in the interest on the investment and the depreciation on the herd, we can safely say that it is costing the farmer at least 85 per cent. more to produce milk than it did fifteen years ago; while the increase in the selling price is only about 40 per cent.—and nothing has been said about the increased demands of the consumer.

The cow testing association gives the farmer the information that will enable him to cull out the unprofitable cows from the herd; it tells which cows to keep the heifer calves from in order to raise better cows; it enables him to distribute his feed in proportion to the milk and fat produced, and stimulates better work both on the part of the dairyman and his help in caring for the herd and the milk—all of which helps to solve the problem of economical production.

The cow testing work in New York State began in 1907 with some work done under the direction of the State College of Agriculture. The next year on May 1, 1908, the Ithaca Association was formed, being the first association in the state. On April 1, 1910, field work was begun in two more associations, at Madrid,

St. Lawrence county, and Delhi, Delaware county. At the close of the year 1911 eight associations were in operation — four in Delaware county, two in St. Lawrence, and one each in Chautauqua and Tompkins. During the year 1912, six more were added to the list, making a total of fourteen.

On January 1, 1913, the cow testing work was put in charge of the Bureau of Farmers' Institutes. On March 21, Director van Alstyne called a conference at Albany of those interested in the work, which was attended by representatives from the College of Agriculture and the Morrisville School, the farm bureau agents and the members of the institute force engaged in dairy work. Plans of organization and management were discussed and a set of resolutions adopted and sent to the various associations. During the ten months from January 1, 1913 to November 1, 1913, seventeen associations have been organized with a total of 7,000 cows, 1,000 of which are pure-bred animals. The total number of associations in actual operation on November 1, 1913, was twenty-four, while the other four contemplate beginning work during November. The total number of cows in all associations now organized is 13,867.

As to their ability to reduce the cost of production of milk we will let the associations speak for themselves. Five hundred and thirty-five cows in the Delhi Association, as shown by the creamery records, produced 270,179 pounds more milk than 536 cows in the same association and in the same herds produced the year before records were kept—the result of culling out the poor cows and a more intelligent management.

Four herds in the Ithaca Association increased the profit over their feed as shown by the following table:

	Herd No. 1	Herd No. 2	Herd No. 3	Herd No. 4
First year	\$18 04	\$38 04	\$22 86	\$13 36
Second year	44 63	41 71	33 60	19 62
Third year	36 02	48 32	57 40	50 59
Fourth year	40 81	54 84	46 59	51 73

The following tables show the possibilities of lowering the cost of production by selection; and that good cows are found in the poorest herds. The six best and the six poorest are taken from twenty herds in two associations.

AVERAGE PER COW

	223 Cows in 6 poorest herds	Best 10 in 6 poorest herds	Best Cow in 6 poorest herds	197 Cows in 6 best herds	Best 10 in 6 best herds	Best Cow in each of 6 best herds
Milk, pounds	406	6,031	7,679	4,828	6,862	8,415
Fat, pounds	177.46	266	321	236	335	396
Cost feed	\$46 65	\$57 05	\$60 29	\$49 55	\$59 74	\$63 79
Profit over feed.....	25 54	49 94	71 26	43 99	75 46	100 74
Returns for \$1 feed....	1 53	1 87	2 18	1 88	2 26	2 58
Food cost 1 pound fat..	26	21	19	21	18	16
Food cost 100 pounds milk	1 15	94	78	1 02	87	76
Profit over all expenses..	.....	17 40	38 72	11 45	42 92	68 20
Loss per cow.....	8 00	.....	.....	.....	.....	.....
Return for one hour labor	11	33	51	28	55	76
Number of hours re- quired to earn one day's wages of \$1.80.....	16:21	5:27	3:31	6:25	3:16	2:22

RETURNS FOR EXTRA FOOD CONSUMED BY GOOD COWS

	Best 10 in 6 poorest herds	Best Cow in 6 poorest herds	Best 10 in 6 best herds	Best Cow in each of 6 best herds
Milk, pounds	1,969	3,617	2,034	3,587
Fat, pounds	89	144.13	99	160
Cost of extra food consumed....	\$10.40	\$13.64	\$10.19	\$14.24
Profit over extra feed.....	25.40	46.72	31.74	56.75
Returns for \$1 of extra food....	3.44	4.42	4.09	4.99
Food cost of 1 pound fat.....	.12	.095	.10	.089
Food cost of 100 pounds of milk.	.53	.39	.50	.39

The table shows that while the average cow in the poorest herds cost her owner a loss of \$8 a year; the average of the best ten in the same herds made a profit of \$17.40 per cow and the average best cow made \$38.72 profit over all expenses. In the best six herds although the average cow made \$11.45 profit, the best ten raised it to \$42.92 and the best cow to \$68.20, making \$100.74 over her feed. The owners of the poorest herds were obliged to work long hours in order to make a day's wages while the best cows in the same herds paid all food, interest and depreciation and gave a day's wages in 3 hours and 31 minutes.

If these dairymen wish shorter hours they must keep better cows. The labor, interest and depreciation cost are based on data given by the owners of the herds and are as follows: Labor, \$20.84; depreciation, \$8.45; interest, \$3.25 per cow. Time spent in milking and care for a year per cow, 117 hours. Average charge for time 18 cents per hour, or \$1.80 per day.

STARTING A COW TESTING ASSOCIATION UNDER DIFFICULTIES

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Farmers' Institute Lecturer

It would seem an easy matter to find in any dairy section at least twenty-six men who would welcome a cow testing association as a means of learning the cost of producing a pound of butter-fat or a quart of milk, as well as the opportunity of detecting the cows that are being kept at a loss. But it is hard to convince the farmer that it may be to his interest to introduce new and business like methods, or to interest him in anything relating to the cost of production. A successful cow testing association also means that the dairymen of the locality are willing to cooperate for their mutual benefit, and that they possess sufficient intelligence to realize that the best is secured only through cooperation.

To organize and profitably carry on a cow testing association such a number of cows must be kept within a certain radius as will make it pay to hire a man to do the work, that is, dairying must be the principal branch of farming in that locality.

Of primary importance in starting an association is perseverance on the part of the organizer. He cannot permit himself to become discouraged, nor entertain the idea of failure. He will find indifference, ignorance and opposition, which he must overcome.

A successful dairyman and owner of a herd of registered cattle retails his milk in a nearby city and obtains part of his supply from neighboring farmers. He was told last spring by the inspector that some of the milk he was selling, as well as that sold by many other dealers, was very close to the legal standard and sometimes below; and he asked me what could be done to improve the conditions. I suggested the formation of a cow testing association among the dairymen of his vicinity. This seemed to him the solution of the problem and one easy to accomplish, but he found, as I had, that it was a more difficult undertaking than might be expected.

The required number of cows was at length secured, a capable man employed to do the testing, and the members of the association are now most enthusiastic. The difficulties met in obtaining a sufficient number of men to cooperate for this purpose are perhaps representative and may be encountered by anyone on the same errand in any part of the state.

Our first day's work included a ride of twenty-six miles and interviews with fourteen men. Four of the men consented, without urging, to join a cow testing association. The first man we saw, a breeder of Holsteins, was very much interested. He suggested calling on two of his neighbors, whom he believed would appreciate the help afforded by such an organization. This we found to be true, and each of the three men promised two and one-half day's work per month for a man.

The attitude of the other ten was anything but encouraging, and the excuses given were many, varied and frequently interesting.

Number One admitted the value of testing cows and would like the benefit of such an association, but said it was impossible to get help in the house, and boarding such men as were essential to keeping up with the general farm work was all his wife could do.

Number Two knew as soon as he saw a cow whether or not she was profitable—he had but to lay his hand on her to tell the quantity and quality of her milk. He had no faith in the Babcock test, and cared nothing for a record of his cows, anyway.

Number Three said, "It makes very little difference to me if my cows do not pay, I am tired of milking and will sell at the first opportunity." When it was suggested that a cow testing association might arouse his interest in dairying he replied, "I don't want to take an interest, I am going into something else."

Number Four was in his back field a half mile from the house and when found was too busy to talk.

Number Five refused to bother with it. He had made a living without testing his cows and knew no reason why he should not continue to do so without the help of an association.

"Yes," said the next man, "I know I have some unprofitable cows, I suppose every dairyman has; but I will not have a man coming in to test my milk and carrying the news to all the neigh-

bors and so injure the sale of my cows." We assured him that the records would all be in his possession, but were unable to convince him.

"My dairy is too small to make it profitable," said Number Seven. However, he promised to think about it when it was suggested that he and a neighbor might combine to furnish a day's work each month for the tester, but so far as I know, he is still thinking about it.

"I am doing my own weighing and testing," said a man with a herd of handsome registered cattle. We admired the cows, and, pointed to one especially fine, asked her milk record for the year. The owner then admitted that he weighed only occasionally and made no records of the amount, in fact, there was no record of any cow in his stable; he had no time to spend on such work. The advantage of having a man come in to attend to the work for him was pointed out, and resulted in the promise "to think it over." He had come to no decision on a second visit, nor yet on a third but when interviewed the fourth time, he had concluded that a cow testing association might be a very good thing and agreed to come into it.

It seemed probable that nothing new in excuses could be given, but our second day's trip furnished one entirely different. We found a man milking a herd of twenty-five cows, "good, bad and indifferent." Undoubtedly he had some poor cows, but he did not know which they were; he had no interest in cow testing. A few years before, a dairyman's club was organized among his neighbors, the members agreeing to improve their stables, produce a better quality of milk and hold out for a better price. This they accomplished, and as a result he received the same advance in price as the others without the trouble and expense of belonging to the club. Let us hope such dairymen are few.

"We are selling milk and want quantity, so long as it passes the inspector the quality does not matter," was frequently answered when the advantage of the test was urged; and failure to pass inspection was often attributed to a personal grudge on the part of the inspecting officer.

It was noticed that of the various excuses made, but few farmers objected to the association on account of the expense. Those who

were asked in this particular stated that while they had use for all their money, the dairy was furnishing them with ready cash.

To the greater number of dairymen whom we tried to interest, a cow test meant solely a tuberculin test, to which they seemed much opposed, and it usually required a quarter or half hour's work to remove that impression. We soon learned that it was better to explain the working of a cow testing association, leave some literature, with the request that the matter be given consideration, then make a second call before asking for a decision; but of over twenty men interviewed, only four or five would promise to give the matter thought. One is impressed with the fact that the average farmer is better trained to work with his hands than with his head; and that he would rather milk ten cows than think about one cow for ten minutes. It does not require a close observer to point out the farms on which the farmer's head does its fair share of work. We found one such near the end of our second day's trip. Everything looked prosperous, the stables were in good condition and the cows sleek and clean. When we stated our business the owner replied, "That is just what I want. I do not need to think about it, I have already done that. I have tried to do some testing, but other work crowds, and then I am inclined to favor certain cows, so I would like to have an unbiased person to do it for me."

The tenant farmer presents another difficulty. We rode nearly an entire day in a good dairy section and found but two men who owned the farms on which they lived. It is almost impossible to interest this class in any improvement which will not make an immediate money return, although the need may be very apparent.

The idea of learning whether the individual cow pays a profit on the food she consumes or is being kept at a loss, was entirely new to most of those with whom we talked; and with the farmer's conservatism he usually preferred to let the other fellow try it out, if it proved a success he was ready with his support; if a failure he would not have the trouble of even thinking about it. In almost every case it was the younger man endeavoring to improve his herd by intelligent breeding and feeding who welcomed the cow testing association.

COUNTY BREEDERS' ASSOCIATIONS

ELMER S. SAVAGE

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That association which has a definite object lives and is most useful to its members. There is a great opportunity for this kind of an association among the breeders of live stock in New York State. The better breeding of live stock is a definite aim and a worthy object. Anything accomplished with this end in view brings a direct money return to those having to do with the accomplishment. This direct money return has a wonderfully good effect upon the enthusiasm of the members who make the money and likewise upon the members who do not but who would like to do so.

Local breeders' associations limited to a county or to a geographical region, such as a valley, may be of two kinds. First, members may all be breeders of one breed of stock. The Chemung County Holstein-Friesian Breeders' Association and the Jefferson County Holstein-Friesian Breeders' Association are of this kind. Second, the members may be breeders of all breeds and classes of stock and have a common interest in the idea of pure-bred stock of all kinds. The Tompkins County Breeders' Association is founded on this idea.

The first kind of an organization is probably the stronger in that the aim is very definite and the members are held closely together by a common interest. However, such associations can develop only in a region where the interest in some one particular breed is very strong already or where there is a chance to develop an interest in breeding one kind of stock. History tells us that this is the strongest kind of live stock breeding. Look to the development of the Jersey breed of cattle on the little island of Jersey only 65 square miles in area. With the possible exception

of the counties of Richmond, New York, Kings and Queens, no county in New York State is as small as this in area. Yet this little island of Jersey has influenced in a marked degree the cattle breeding of the entire world. The same is true of the influence of many other small areas in the old world where the natural conservatism and strong community interests have made for the exceptionally high development of one breed of stock within a restricted area. In fact, most of our breeds of farm animals as we know them today, have been developed in this manner.

For most regions in New York State, the second type of association will perhaps meet the greater need, namely, bringing together the breeders of all classes and breeds into one general association with the common object of better breeding. In either case the main object must be pure-bred stock. No farmer can longer afford to keep grade stock. He must begin at once to introduce pure-bred animals into his herds and flocks and not be content until every grade has been replaced by a pure bred. Lest he should be misunderstood, the writer must explain that he means that this introduction will be gradual and not by immediate purchase of whole herds and flocks. The change must come first through the purchase of pure-bred males and then of pure-bred females one or two at a time. All this can be done with a minimum outlay of capital. It should be the active aim of every breeders' association and of every individual member that (1) no grade or scrub breeding male be tolerated within the association and (2) that all grade and scrub females shall be replaced by pure bred as rapidly as the pocketbook of the individual will permit. Cost accounting and farm surveys are showing in no uncertain way that the only way farmers in New York State can make money through live stock is by keeping that of better class.

In order to give a concrete illustration of the organization and successful working of an association of the second type, a short history of one follows.

TOMPKINS COUNTY BREEDERS' ASSOCIATION

Since February 1911, Tompkins county, New York, has had a county breeders' association. To quote its constitution, its object is — "to promote the breeding and improvement of high-grade and pure-bred live stock in Tompkins county, and to aid its mem-

bers in buying, breeding and selling first-class animals." The association has been productive of good in the community and its ideal is slowly being realized in that, even in so short a time, the interest in better live stock has been greatly stimulated. With the thought that other communities and readers may have ideas concerning the founding of such an association, a sketch of this association is here given.

Organization and History

Early in the winter of 1910 and 1911, the writer attended a farmers' banquet in Waterburg, N. Y. The subject of the talk given by him was "Community Breeding" in which the idea of a county breeders' association was mentioned. Three weeks later five or six breeders who had been present at the banquet visited the writer and proposed to form such an association. The idea grew and flourished so well that by May 15, 1911, eighty-two breeders signified their desire to become charter members. With this nucleus the association was formed. The customary constitution and by-laws were adopted and officers elected.

The constitution and by-laws were made as short and concise as possible. The officers are; a president, a vice-president and a secretary-treasurer. In addition to these officers, there is a director from each township in the county. These officers and directors are elected by the association and officers of the association and the directors form the executive committee. The office of director carries with it the privilege of calling local meetings and the duty of looking after the interests of the association in that township.

The membership of the association consists of persons who are interested in the object of this association and who pay the required annual fee of one dollar. Any person who wishes to join must be recommended to the executive committee by a member. He becomes a member by vote of the executive committee and by paying the required fee. The constitution and by-laws of the association are printed in full at the end of this article.

The persons who formed the organization had in mind to make it simple and effective with as few cumbersome details as possible. It is the duty of the members to cooperate with their fellow members in the use of pure-bred sires and in buying and selling animals; also to get new members and to encourage them in the practice of better methods in caring for their herds and flocks.

Activities

The activities of the association have taken five forms; (1) an annual meeting or field day is held in the interest of more and better pure-bred stock in Tompkins county; (2) special premiums have been offered at the local fairs in Tompkins county to members of the Tompkins County Breeders' Association; (3) the association has advertised the surplus stock of its members in two of the leading farm papers in the eastern United States for the past three years. The advertisement has been as follows:

TOMPKINS CO. BREEDERS'
 ASSOCIATION, Box B, Trumansburg, N. Y.
 —Breeders of Holstein, Jersey & Guernsey cattle
 and the leading breeds of sheep and swine. Write
 for sale list.

(4) the association has published a monthly journal of twenty pages called the Tompkins County Breeders' Journal; (5) the association has projected the establishment of a farm bureau in Tompkins county which shall be controlled by the farming people of the county.

Results of these Activities

Three annual meetings have been held. The accompanying illustration shows that one of them was a success from one point of view at least. The association has grown to a membership of one hundred and fifty. These members have a common, definite object. They are educating each other to a better understanding of the benefits of better practice in live stock farming.

As a direct result of the activity of the work of the Tompkins County Breeders' Association, there was distributed in 1911 in Tompkins county to the members of the association \$650 at the county fair and \$325 at town fairs within the county. In 1912, the county fair paid \$650 to members of the association and the town fair mentioned above paid \$325, while a second town fair paid \$75. In 1913, the county fair paid \$600 and one town fair \$450. In the three years, the total paid amounts to \$3,075. More than one half of this money has gone into the pockets of our members. All of it has been spent within the county. A greater interest in the stock show department of the fairs has been stimulated. This spells permanent improvement in the herds and flocks of the county. About 80 per cent. of the money above noted has come into the county from the State Department of Agriculture



FIG. 92.—FIRST ANNUAL MEETING OF TOMPKINS COUNTY BREEDERS' ASSOCIATION. PICNIC DINNER.

as that part of the fair premiums paid according to state law from the funds appropriated for this purpose by the state legislature. This sum of approximately \$2,400 would never have come to our breeders if it had not been for the activity of this association. The fact that many of our breeders are getting material benefit from the work or the association makes, of these members, workers in the interests of the association.

The association has received in the six months ending February 1, 1913, 160 replies to the above advertisement. Thirty-five have asked for the sales list, explained under the journal below; fifty-five for Guernsey cattle, thirty-eight for Holstein cattle and fourteen for Jerseys. Three persons have asked for Shropshire sheep and one each for Southdowns and Hampshires. Berkshires have been wanted by five persons, Chester Whites by two and Tamworths by one. Twenty-five persons have inquired for cattle, thirteen for sheep and ten for swine without mentioning any breed. There have been a few inquiries for horses.

The cost of advertising in this way for the year February, 1912 to February, 1913, was \$66.80. This cost has been borne by the association. Several sales have been made. The manner of making sales is this: The answer to the advertisement comes to the secretary of the association; for a time he has sent the sales list as printed in the Breeders' Journal, of late he has been sending the name and address of the inquirer to those members having stock of the particular breed wanted for sale. The number of answers to the advertisement has been remarkably large. The reasons why more sales have not been made is solely due to the fact that the breeders have not had the stock wanted from the standpoints of quantity and quality. There is no question of the opportunity for the sale of stock if the members will only produce stock of the proper quality. There is a great opportunity in this field of co-operative advertising of surplus stock.

The Tompkins County Breeders' Journal binds the association together. This little magazine is mailed to subscribers for twenty-five cents per year. It has a list of about four hundred paid subscribers and has been sent free to many more each month. The journal has been devoted to the interests of better farming. A grange department is maintained to which correspondents in each local grange contribute from time to time. A breeders' directory is

maintained in which is listed the names of all those members of the association who have any pure-bred stock. The name and address of each member is listed under the breed of horses, cattle, sheep, swine or poultry which he raises.

A sales list is maintained in which members may list each month those animals which they have for sale. Each member has been charged for this the bare cost of printing and he may make his list short or long. In the future, members will be allowed to list their stock free, a certain amount of space being allowed for one animal. The secretary is expected to send this sales list to the prospective purchaser who may answer the advertisement published in the general farm papers as described above. The sales list has been small due to the small amount of stock offered by the breeders. This department has great possibilities when more stock is available.

Lastly, the breeders' association has projected a farm bureau for Tompkins county, and enough money has been raised by the breeders' association to support it. The executive committee of the association with two members of the Tompkins County Pomona Grange and a member of the Tompkins County Board of Supervisors will make up the farm bureau committee. This farm bureau committee will then appoint a farm bureau agent who will work for the best interests of agriculture in Tompkins county. The breeders' association will provide this agent with an automobile that he may cover more territory. The farm bureau agent will act as editor of the Breeders' Journal and will take over the work of handling the sales department of the breeders' association. The farm bureau agent of Cattaraugus county has been very successful in conducting stock exchanges of this kind.

This completes the discussion of the activities of this organization. The facts here given are presented for what they may be worth for the consideration of other communities interested in stock breeding. The members of the Tompkins County Breeders' Association think that the results already obtained have been worth the effort. However, the greatest results from this work are yet to be realized. In the words of Professor Wing, "When we have pure-bred chickens, pure-bred hogs, pure-bred sheep, pure-bred cows and pure-bred horses, we will have pure-bred men and women and that is what we all want."

TOMPKINS COUNTY BREEDERS' ASSOCIATION

CONSTITUTION

ARTICLE 1.

Name.

The name of this Association shall be the Tompkins County Breeders' Association.

ARTICLE 2.

Object.

The object of this Association shall be to promote the breeding and improvement of high-grade and pure-bred live-stock in Tompkins county and to aid its members in buying, breeding and selling first class animals.

ARTICLE 3.

Membership.

The membership shall consist of persons interested in the object of this Association and paying the required annual fee.

ARTICLE 4.

Organization.

The officers shall be a President, a Vice-President, a Secretary-Treasurer, and the Editor of the Tompkins County Breeders' Journal, and one Director from each township in Tompkins county.

There shall be an executive committee which shall consist of the officers of the Association. This committee shall have charge of the affairs of the Association when it is not in session, and during its meetings shall be at the command of the Association.

ARTICLE 5.

Meetings.

There shall be a regular annual meeting of the Association and such special meetings at times and places determined by the executive committee.

ARTICLE 6.

Election.

The election of officers shall be held at the regular annual meeting and such election shall be by ballot.

ARTICLE 7.

Amendments.

Amendments to this Constitution may be made by a majority of the executive committee with the concurrence of two-thirds of the members of the Association voting on the question by mail within thirty days after the notice is mailed by the secretary, or by a two-thirds vote of the active members present at the annual meeting.

BY-LAWS**SECTION 1.***New Members.*

Any person, upon recommendation of a member and accepted by the executive committee, shall become a member upon paying the secretary the regular annual fee.

SECTION 2.*Duties and Privileges of Members.*

It shall be the duty of members to co-operate as far as possible with their fellow members in the use of pure-bred sires and in buying and selling animals; also to get new members and encourage them in the practice of better methods in caring for their herds and flocks.

All members in good standing shall be entitled to vote in the business meetings of the Association.

SECTION 3.*Dues.*

The membership dues shall be \$1.00 payable annually to the Secretary-Treasurer of the Association.

SECTION 4.*Officers.*

The officers shall be elected to serve one year and shall perform such services as are ordinarily required by their positions and shall serve until the election of their successors.

SECTION 5.*President.*

The President shall serve for one year and shall preside over the meetings of the Association and shall give an annual address.

SECTION 6.*Vice-President.*

It shall be the duty of the Vice-President to perform the duties of the President in his absence.

SECTION 7.*Secretary-Treasurer.*

The Secretary-Treasurer shall keep a record of all proceedings of the Association and of the executive committee, all membership dues and miscellaneous proceedings and shall disperse or invest such money as directed by the executive committee and all other moneys received by the Association and record and hold in trust such property of the Association other than money in the hands of the Association. He shall also act as correspondent of the Association in such matters as pertain to the business of the Association and do all in his power to promote the interests of the Association.

SECTION 8.*Directors.*

It shall be the duty of the several directors to look after the interests of the Association in the various townships and they shall have the privilege of calling local meetings and doing all in their power to promote the general interests of the Association in such a manner as the executive committee shall deem fit.

SECTION 9.

Executive Committee.

The President shall act as Chairman of the Executive Committee and the meetings shall be called through the Secretary. Seven members shall constitute a quorum. It shall be the duty of this Committee to determine upon the place and time of the special meetings and give due notice of them through the secretary. They shall elect members of the Association and shall have power to expel any member whenever in their judgment it is for the best interests of the Association to do so. They shall carry out the resolutions voted by the Association, appoint such special committees as are necessary and make an annual report to the Association upon the standing and progress of the work of the Association.

SECTION 10.

Auditing Committee.

At each annual meeting there shall be appointed an auditing committee consisting of three members whose duties it shall be to examine and report upon all books and accounts of the officers for the past year.

SECTION 11.

Order of Business.

1. Reading of minutes of previous meeting.
2. Report of Treasurer.
3. Report of committees.
4. Unfinished business.
5. New business.
6. Election of officers.

NEW YORK STATE DAIRYMEN'S ASSOCIATION

W. E. GRIFFITH, Madrid, N. Y.

Secretary of the Association

The New York State Dairymen's Association was organized in 1877 with a twofold object. First, to act as a disseminator of knowledge relative to the dairy industry and animal husbandry. This was brought about by holding an annual meeting, during the course of which addresses were given by recognized authorities on various subjects, and in the discussion which followed, golden truths, the result of the speakers' experiences, were the treat of those who attended. Second, the association was designed to act as spokesman for the dairy interests of the state. Any business of this magnitude in the Empire State could well afford to have some organization through which their sentiments and needs could be made known.

Much credit is due the men who were responsible for the formation of such an association. Among the number was Honorable Harris Lewis, and it was entirely fitting that he should be selected for president of the association at the time of its organization, in which capacity he served for eleven consecutive years. Mr. Lewis and his colleagues felt confident of the absolute certainty of development of the dairy interest of the state. At the conclusion of this article is a list of the officers of the association since its organization.

Dairy Commissioner J. K. Brown, Colonel F. D. Curtis, Professor I. P. Roberts, George A. Smith, A. R. Eastman and Assistant Commissioner of Agriculture, George L. Flanders were among those who rendered yeoman's service in the early years. There were then no farmers' institutes and appropriations were made by the legislature finally reaching \$5,000 to be expended by the association in instruction work in addition to that given at the annual meeting and in the report. As a result, "dairy schools" and summer meetings were held in all the counties of the state which made any pretention to dairying. Also, a complete cow census of the town of Bovina, Delaware county, was made.

After the institutes were established and the appropriation for this purpose raised to \$20,000, no further state appropriation was made to the dairy association; it being understood that the institutes would do the instruction work. The holding of the annual meetings has only been made possible by the help of the Commissioner of Agriculture in assigning agents of the department to assist in the preliminary work and in supplying speakers from the institute force.

The annual meetings of the association were continued with more or less success until the meeting held at Cortland in December, 1897, when it was apparent to those who attended that something must be done to meet the demands of the times. Many changes were made among the officers, and the first annual meeting under the new regime was held in Gouverneur during January, 1899.

The most radical change adopted by the newly elected officers was the addition to their convention of an exhibit of dairy products and dairy machinery. The finances of the association, after the Cortland meeting, were very low; in fact, so much so that many men deeply interested in the preservation of the association, contributed liberally to tide over the critical state of its existence. At this time, Mr. W. W. Hall, of Gouverneur, was elected secretary, and upon his shoulders was thrown the responsibility for the success or failure of many of the succeeding meetings. Many of those who read this article may have had a personal acquaintance with Mr. Hall. To these it seems to me to be presumptuous to attempt to explain Mr. Hall's absolute fitness for the position of secretary,—his ability to meet men of every sphere in life, his convincing way, and absolute devotion to the dairy interests of the Empire State.

At a time in life when many men consider new ventures unnecessary, Mr. Hall was assigned to perform the duties of cheese instructor at Cornell University Dairy School. The great success that rewarded his efforts, were similar to the results brought by him as secretary of the Dairyman's Association. Mr. Hall credited his friends and the dairy supply manufacturers for the successful meetings that followed his election to the office of secretary of the Dairymen's Association. With very few exceptions the exhibitions of dairy products and dairy machinery have been held in connection with the Convention each year since 1897.

The question of financing a meeting of this kind without direct state aid is considerable of a problem. Following the Cortland meeting of 1897, it was decided to secure suitable space for the exhibition of dairy machinery and sell this space to the various manufacturers for exhibiting their products. In addition, an official program was printed from which a revenue for advertising space was secured. It was the custom to hold these annual meetings in various sections of the state, extending from Ogdensburg on the north, to Jamestown in the western section and the usual custom was to select a large town or a small city in which to hold such meetings. This custom was continued from 1897 until the annual meeting at Olean in 1911, at which there seemed to be a pronounced sentiment in favor of holding the next convention in a large city.

Invitations were received from several cities, and Syracuse was finally decided on as the most centrally located, with splendid transportation facilities, good hotels and many advantages over other sections. There are a number of Syracuse business men who are directly interested in the dairy business of the state, and with their cooperation, the State Armory was secured for holding the 1912 annual meeting. This building furnished an exhibition hall of 100 by 150 feet, nearly double the size of any exhibition hall in which previous meetings of the association had been held. The addresses were delivered in a room in the same building.

At this time several changes were made in the manner of conducting the meeting. The expenses were necessarily higher as compared with holding the meetings in a smaller town, so it was finally decided to increase the cost of exhibition space from 10 cents to 25 cents per square foot. Here again the manufacturers of dairy apparatus demonstrated their loyalty to the dairy interests of this state. With practically double the space to sell and 150 per cent. increase in cost of space, every available foot was disposed of and paid for several days before the opening of the convention. As a further source of revenue, it was decided to charge an admission fee of 25 cents. This was a most radical change from any previous convention, as they had been free from the time the association was organized in 1877. Even with the increased revenue from the sale of space and admission fee, the officers of the association would have been unable to have conducted the

meeting without the liberal assistance of Honorable Calvin J. Huson, Commissioner of Agriculture.

Expressions of satisfaction were heard from exhibitors as well as visitors at the convention commending many of the changes that had been adopted. An effort was made to secure authorities to talk on various subjects at the several sessions. The program was confined to one address at each session, followed by an interesting discussion. The meetings were well attended and highly instructive.

Since 1877 the production of milk has greatly increased and the problems confronting the producer today are much different. Collecting milk at one central point for manufacture into butter or cheese might be considered an exception rather than a rule in 1877. Since then, we have passed through the period when creameries and cheese factories were supreme. We are now confronted with the problem of producing milk for the city trade. The phenomenal growth of the ice cream industry has created such a demand for cream during the summer months that the dairies are taxed to their utmost. The solution will be simply stretching out the line of limitation.

The addresses given by recognized authorities at the conventions are intensely interesting and furnish thoughts and ideas that will assist the dairyman in increasing his capacity for production of milk, and the annual meeting should be of much greater importance to the dairyman of today than in the days when the association was first organized. The dairy interest of this state is second to none in importance and the meetings should have an attendance amounting into the thousands. An opportunity is given the visitors to see and inspect the latest and most up-to-date, machinery and appliances that are produced.

As was done in 1912, a cattle sale was again conducted at the December, 1913, convention. This feature proved very successful and was an inspiration to the dairymen to breed and keep better stock. At the latter convention also, the Association of the New York State Manufacturers of Ice Cream held their annual meeting in the Armory. They represent a comparatively new industry and one that bids fair to be a very important factor in the consumption of our milk and cream.

OFFICERS NEW YORK STATE DAIRYMEN'S ASSOCIATION

(Organized March 8, 1877)

1877-1878		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., Cyrus D. Avery, Syracuse
1879		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., Fred I. Evans, New York City
1880		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., Solomon Hoxie Whitestown
1881		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., Solomon Hoxie Whitestown
1882		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	
1883		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., J. V. H. Scovill, Paris (Oneida Co.)
1884		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	
1885		
Pres., Hon. Harris Lewis, Frankfort	Sec., Hon. Josiah Shull, Ilion	Treas., J. V. H. Scovill New Hartford
1886		
Pres., Hon. Harris Lewis, Frankfort	Sec. and Treas., Hon. Josiah Shull, Ilion	
1887		
Pres., John S. Shattuck, Norwich	Sec., Hon. Josiah Shull, Ilion	Treas., G. W. Burbank, Binghamton
1888		
Pres., John S. Shattuck, Norwich	Sec., Hon. Josiah Shull, Ilion	Treas., G. W. Burbank, Binghamton
1889		
Pres., Prof. I. P. Roberts, Ithaca	Sec., Hon. Josiah Shull, Ilion	Treas., G. W. Burbank, Binghamton
1890		
Pres., W. H. Gilbert, Richland	Sec., Hon. Josiah Shull, Ilion	Treas., Geo. T. Powell, Ghent
1891		
Pres., Hon. Josiah Shull, Ilion	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1892		
Pres., Jesse Owen, Elmira	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1893		
Pres., Frank Blanding, Hubbardsville	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1894		
Pres., E. S. Munson, Franklin	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1895		
Pres., A. D. Baker, Aurelius	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent

1896		
Pres., A. Chase Thompson, Owego	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1897		
Pres., L. L. Van Slyke, Ph.D. Geneva	Sec., B. D. Gilbert, Clayville	Treas., Geo. T. Powell, Ghent
1898		
Pres., A. R. Eastman, Waterville	Sec., S. B. Richardson, Lowville	Treas., F. E. Dawley, Fayetteville
1899		
Pres., S. B. Richardson, Lowville	Sec., W. W. Hall, Gouverneur	Treas., F. E. Dawley, Fayetteville
1900		
Pres., Geo. A. Smith, Frankfort	Sec., W. W. Hall, Gouverneur	Treas., F. E. Dawley, Fayetteville
1901		
Pres., Geo. A. Smith, Frankfort	Sec., W. W. Hall, Gouverneur	Treas., F. E. Dawley, Fayetteville
1902		
Pres., D. P. Witter, Berkshire	Sec., W. W. Hall, Gouverneur	Treas., F. E. Dawley, Fayetteville
1903		
Pres., H. E. Cook, Denmark	Sec., W. W. Hall, Gouverneur	Treas., F. E. Dawley, Fayetteville
1904		
Pres., Geo. A. Smith, Frankfort	Sec., Robert McAdam, Rome	Treas., J. Van Wagenen, Jr. Lawyersville
1905		
Pres., V. C. Beebe, Arcade	Sec., W. C. Patrick, Jamestown	Treas., J. Van Wagenen, Jr. Lawyersville
1906		
Pres., M. T. Morgan, West Winfield	Sec., Thos. E. Tiquin, Sherburne	Treas. and Asst. Sec., Jared Van Wagenen, Jr., Lawyersville
1907		
Pres., W. W. Hall, Gouverneur	Sec., Thomas E. Tiquin, Sherburne	Treas. and Asst. Sec., W. E. Griffith Madrid
1908		
Pres., Dr. W. H. Jordan, Geneva	Sec., Thomas E. Tiquin, Sherburne	Treas., W. E. Griffith, Madrid
1909		
Pres., Prof. H. H. Wing, Ithaca	Sec., Thomas E. Tiquin, Sherburne	Treas., W. E. Griffith, Madrid
1910		
Pres., J. D. Frederiksen, Little Falls	Sec., Robert R. Kirkland, Philadelphia	Treas., W. E. Griffith Madrid
1911		
Pres., I. L. Hunt, Adams	Sec., Robert R. Kirkland, Philadelphia	Treas., W. E. Griffith Madrid
1912		
Pres., E. H. Dollar, Heuvelton	Sec., W. E. Griffith, Madrid	Treas., Robert R. Kirkland, Philadelphia
1913		
Pres., E. H. Dollar, Heuvelton	Sec., W. E. Griffith Madrid	Treas., Robert R. Kirkland, Philadelphia

HISTORY OF THE STATE FAIR DAIRY EXHIBIT

GEORGE A. SMITH

Dairy Expert, New York Agricultural Experiment Station, Geneva

Dairying was one of the branches of agriculture which received its full share of attention in the early history of the New York State Agricultural Society, and an especial effort was made to stimulate the industry. In those days the method followed at the annual fair was quite different from the plan practiced in later years. The number of exhibits was not large and prizes were given on the basis of yield for a given time, and clearest and fullest statement of the method of manufacture and quality of the product. It might be of interest to give one of these statements as made by Mr. George Vail of Troy for butter exhibited at the fair held at Poughkeepsie, September 18 and 19, 1844, at which he received a silver medal. Six short-horn Durhams were used. Three were on trial for thirty days from May 27 to June 25 inclusive. The product from their milk was 146 pounds, 2 ounces of butter. The other three were on trial from July 8 to August 6 and the product was 116 pounds, 7 ounces. The total product was 262 pounds, 9 ounces of butter which made an average for each cow in thirty days of 43 pounds, 12 ounces. One of these cows whose milk was made up separately produced 52 pounds, 9 ounces of butter in the thirty days.

The animals were in ordinary condition and fed on pasture only. Cows that can show as good a record for production are not common even today. The method of making and preserving the butter was as follows: The milk was strained into pans holding from 8 to 10 quarts and allowed to stand until sour, the cream skimmed off, kept for 48 hours and then churned in a dash churn. The butter removed from the churn was worked and salted with ground rock salt, placed on the cellar bottom surrounded with ice for 24 hours, and then reworked and packed in jars. This method, with very little variation, was the one reported as being used by the six exhibitors.

There were two exhibitors of cheese. The report of Mr. A. L. Fish of Litchfield, Herkimer county is especially worthy of notice. His herd numbered 25 cows. The quantity of cheese made in 1844, between May 1 and September 17, was 566½ pounds per cow, or a total of 14,163 pounds. The cows that came in before May 1 produced an average of 650 pounds, making a total average of 592 pounds per cow. If the milk from the balance of the season had been made into cheese it is estimated that the average would have been 700 pounds per cow. The cheese was sold for 6 cents per pound. Mr. Fish gave a very complete report of method of manufacture. He reports the expense for grain fed to the cows as \$22; for help on farm and making cheese, two men, \$176.



FIG. 93.—NEW YORK STATE CHEESE EXHIBIT AT THE PAN-AMERICAN EXPOSITION, 1901.

The point of especial interest is the large yield made with an ordinary herd of cows. With all the effort we have made in late years to improve the breeding of the cows kept, only a small proportion of the farmers are equalling this record. According to

the last census the average is only about 4,500 pounds of milk per cow in the state. At the fair held at Utica in 1845, there were 100 cheeses exhibited. The prize was \$20 for the best sample of three cheeses from ten dairies in any county. The judges reported that there was not one poor cheese or one that could be called medium. The report reads in part as follows: "We have labored under a serious embarrassment in not having a guide sanctioned by the society. It is difficult to define a good cheese. Nowhere is the diversity of taste more strikingly exemplified than in the like or dislike of cheese. One likes it strong, another mild; one likes it hard, another soft — but all prefer it rich and not rank smelling." In conclusion they give a standard as follows: "A good cheese should be well made and contain all the cream that was in the milk. It should be mild to the taste, melting in the mouth, leaving a pleasant sensation and a good relish for more." It is doubtful whether anyone could give a better description of what is desirable in a good cheese. The first prize was awarded to Herkimer county. Each maker gave a description of his method, all of which conformed to the general plan followed at that time. In 1848 a new feature was introduced, in that a premium was given on cheese over one year old, and on butter made by girls under twenty-one years of age. One of the interesting things was that the first-prize cheese came from Erie county. The quality was remarkably good and showed that the central part of the state was not the only section of country where cheese of the finest quality could be made.

In 1849 the butter exhibit was very good, but only one cheese was exhibited and that the committee did not consider worthy of a premium. In 1850 at Albany there was a good exhibit of both butter and cheese. The pineapple and English dairy cheeses were very good, but aside from these, of the fourteen samples shown only four were worthy of a premium. In 1851 the principal thing of interest was in the exhibit of counties where the judges were unanimous in awarding the county premium to Jefferson, and added that Herkimer was a close second as their exhibit of cheese was almost faultless, one single cheese deciding in favor of Jefferson.

In 1852 a good exhibit was made, but the principal thing of interest were the two cheeses weighing over 500 pounds each exhibited by Jesse Williams of Rome, the builder of the first cheese factory. There was also an exhibit of Swiss cheese made in Oneida county.

No exhibit of especial interest was made for several years after this. The amount of money paid for premiums was gradually increased until in 1859 \$100 was paid on butter, divided equally between the general exhibit and that made by young ladies under 21 years of age.



FIG. 94.— FLOCK OF CHEESES AT STATE FAIR.

As to cheese, the same amount of money was divided between makers of cheese over one year old, and the then present season's make. The premiums were given as follows: \$20 to first, \$15 to second, \$10 to third, and \$5 to fourth, in all of the classes.

At the fair in 1864, Levi Tanner of Marcy, Oneida county, exhibited a cheese weighing 700 pounds. He was awarded first premium, and deservedly so, for when his cheese was tested in the presence of some of the best judges on this side of the Atlantic, it was pronounced equal if not superior to the finest foreign brands.

At the fair held at Utica in 1865, an especial effort was made to have an excellent cheese exhibit, and the report states that never

before in any age or country had there been such a splendid exhibition. It was planned to have the exhibit embrace all the first-class factories of the state. Factories which were not represented at this time are believed to have been making a second class article that they were afraid to run the risk of showing. An ordinary observer going through the hall would have been attracted by simply the inviting appearance of the various lots on exhibition. But to the dairymen, these cheeses were of interest since the various dairies could be compared side by side, and lessons of improvement learned. The cheeses were arranged in the tent by counties — Herkimer county, 100; Oneida, 98; Erie, 60; Jefferson, 41; Wyoming, 40; Lewis, 30; Otsego, 18; Madison, 9; Oswego, 7; St. Lawrence, 6; Onondaga, 6; a total of 516. One of the most interesting things in the exhibit was the big cheese from Canada. Smith & Sons, of Norwich, Oxford county, Canada, sent a cheese weighing 4,240 pounds. It was 16 feet in circumference, 5 feet in diameter and 2 feet, 4 inches high. It was shown on a wagon especially arranged for it in the central part of the tent. The Canadian report reads: "The chief feature of the New York State Fair this year was the monster cheese from Canada. They fancy they know something about cheese in the State of New York, and cheese was made a great feature of the show. The New Yorkers did their best, and thought they had done a great deal, but Canada laid the New Yorkers as flat as pancakes." The State fair report reads in part as follows: "The big cheese on being tested showed a solid plug of good texture, but was not equal to some of the state cheese in flavor." The premiums received are not stated. At the close, the exhibit was sold to C. D. Faulkner at 17 cents a pound for shipment to England. It is also stated that John Webb, the English shipper, bought 100 boxes from the Fairfield Dairy Association, paying two cents above the market price, and shipped them to England to be shown at the London fair.

At the state fair held in 1867, the committee reports the largest exhibit of butter ever shown. The object was to test the relative values of Syracuse and Ashton salt for butter. In twenty-five cases the Syracuse salt was pronounced best; in five

cases the Ashton. From this showing, they reported that it was undoubtedly safe for the dairymen to use Syracuse salt.

Following this, there was nothing of special interest for a number of years. In 1871 Harris Lewis reported that the exhibit of butter and cheese was meager beyond excuse for a showing from a state having a greater amount of capital invested and consequently a greater interest in this branch of agriculture than in any other one interest. The few samples of butter and cheese shown were of superior quality, showing what might and should have been done.



FIG. 95.—PYRAMID OF DIFFERENT STYLES OF CHEESE.

At the fair in Utica in 1882, a prize of \$50 was offered for the best twelve cheeses of not less than 20 pounds in weight, each from the same factory or dairy, and suitable for army or other use. At the same time the amount of premium was increased for butter and cheese to \$500.

At the fair in 1891 fifty entries of butter and 53 of cheese were made. The executive board states, in their report, that the inadequate accommodation for keeping and showing the dairy exhibits undoubtedly accounted for the fact that the number was

not more. It was decided that nothing short of a permanent dairy building would meet the requirements, and it was hoped that means might be forthcoming for the proper exhibition of the products of one of the most important industries of the state. Accordingly the legislature of 1893 gave the State Agricultural Society an appropriation for this purpose. The new dairy building was erected but owing to the Columbian Exposition that year, the dairy exhibit was small.

In 1894 the entire system of receiving, classifying and judging the butter and cheese was revised. Packages were known only by number furnished the exhibitor at the time of making the entry, no marks or brands being allowed on packages or cases. A scale of points was determined upon to govern the judging, 100 being the maximum, and no exhibit scaling less than 94 points was to be deemed worthy of a prize. There were 62 entries of butter and 84 of cheese. Thirty-three prizes were awarded for butter, and 32 for cheese.

At the fair held in 1895, a radical change was made in the method of giving the premiums. Under the old system only a few of the best could obtain a premium. In order to secure a more representative exhibit, and have a larger number of dairymen take part, the following plan of awarding prizes was used: The number of points scored by each exhibit above 94 were added together, and the whole amount of money set aside for prizes in that class was divided by this sum, which determined the unit value of each point. Then multiplying the unit of value by the number of points above 94 scored by each exhibit, determined the amount of prize to which the exhibitor was entitled. Only one prize was given to an exhibitor in any one class. The scores were:

Butter		Cheese		Cheese
		export		home-trade
Flavor.....	45	Flavor	45	50
Texture and body....	25	Texture and body.....	80	25
Color.....	15	Color	15	15
Salting.....	10	Finish	10	10
Packing.....	5			
			100	100
	100			

In the exhibit of butter, the creamery was given a separate class from private dairies, and the same with the different kinds of cheese. This plan gave quite an exhibit of soft cheese for the first time. The number of entries was, butter 72, cheese 83. This method of giving premiums pleased the exhibitors, for while no one received any large amount, all the creditable exhibits received enough to pay the expense of sending them, and it gave them a line on the quality of the product they were putting out. The entries were well distributed over different parts of the state. At



FIG. 96.—EXHIBIT OF FANCY CHEESE AT NEW YORK STATE FAIR.

each succeeding fair there was a gradual increase in the number of exhibits, and at the same time more varieties were shown. At the 1898 fair 301 entries were made. Beside the usual hard cheese, there were exhibits of Pineapple, Neufchatel, Square Cream, Young America, Sage and Club cheese.

In 1899, the number of entries was 275, but the fair was not a success financially. While the executive committee of the State Agricultural Society had put forth every effort possible with the means at their command, the receipts were not sufficient to pay the running expenses; therefore at the annual meeting in January,

1900, the following resolution was passed: "Resolved, That it is the sense of the executive board of the New York State Agricultural Society, that it is for the best interests of the agricultural and horticulture of the state that from this time the state fair and its affairs shall pass under state management, and that legislation shall be adopted to that end." Pursuant to this action, the legislature passed a bill in which the state assumed the indebtedness of the society and arranged for holding a fair by a commission to be appointed and made up of eleven members, to be selected because of representing the different agricultural interests of the state. From that time on, up to the present, not being hampered by a lack of funds, the fair has had a good normal growth. Since the new commission has been in charge there has been no detailed report published giving the facts in regard to different departments, as was done by the executive board of the State Agricultural Society. For this reason it is impossible to give a detailed report of the happenings of each year. The writer having been in charge of the dairy exhibit either as superintendent or commissioner, will give from the little data available and from memory, as full a history as possible of the more important events.

In 1901 the premiums offered amounted to \$1,200, in 1902, \$1,300, and in 1903, \$2,000. On account of the Pan-American at Buffalo in 1901 very little work was done at Syracuse. For the years up to and including 1906, the number of entries could not be obtained. The premiums paid remained at \$2,000. One of the early efforts to attract attention and at the same time to educate the consumers as to the different varieties of cheese, was building a pyramid with large cheese at the bottom, graduating upward with smaller cheese and different varieties. The next effort in this line was large cheeses. In the light of the late efforts, the first ones would not be considered very large. They weighed from 500 to 1000 pounds. Since that, each year they have been made a little larger until this last year when the big cheese weighed 6,500 pounds.

In 1907 owing to the interest in the question of the practicability of the milking machine, the commission arranged with the manufacturer of one of the prominent makes to give an exhibit,



FIG. 97.—“BIG CHEESE” EXHIBITED AT 1912 STATE FAIR. HORACE A. REES, THE MAKER, AT RIGHT.

milking the cows three times a day at stated intervals. The cows were placed on a platform four feet high, showing the whole operation and in a shape to be easily seen by those who were interested and wished to get an idea of just how the work was accomplished. This exhibit was continued for three years, and then dropped, as people were becoming well enough informed as to its working so that it had ceased to be an educational feature. There were 165 entries of butter and 280 in cheese that year.



FIG. 98.—JUDGING CHEESE, NEW YORK STATE FAIR.

From left to right: Wm. Patrick, R. Mc-Adams, Alva Hargrave, Milton Morgan, Horace Rees.

The new feature at the fair in 1908 was a demonstration and contest in butter making open to men and women, with \$150 in cash prizes. This was helpful in arousing interest in the dairy work, and a goodly number of both men and women entered for the competitive work. There was an interested attendance each day of the fair to see the butter made. In order to stimulate the interest in the exhibit, a gold and silver medal was offered for the highest score in the various classes in butter and cheese and a diploma to all exhibits scoring over 95. There was also an increase in the total cash prizes offered which amounted to \$2,800. There were 218 entries in butter and 309 in cheese. Total entries 542. The gold medal in butter was won on a score of 98.75,



FIG. 99.— AUTOS WHICH BROUGHT THE MILK TO MAKE THE "BIG CHEESE."



FIG. 100.— MAKING THE "BIG CHEESE."

the silver medal, 98.5. In cheese, the gold medal was won on a score of 99.75, the silver medal 99.81, a remarkable showing for quality. There was also a prize of \$200 offered for bottled milk and cream, with a gold and silver medal for highest score. The gold medal was won on a score of 100, the silver medal 99.75. The entire exhibit was of a high standard of excellence and was a credit to the dairymen of the state.

The legislature made an appropriation for a new dairy building which was furnished in time for the 1909 fair. The six refrigerated glass-front exhibiting cases afford abundant room for showing the exhibits and keeping them in excellent shape. A feature of the new building was the amphitheater provided for demonstration, seating 500 people. The same general plan of exhibit was followed as in previous year. The premiums offered in all the different classes were \$2,900, divided as follows: \$950 on butter classes, \$1,280 on cheese, \$200 on milk and cream, and \$150 on butter making contest. The balance was awarded for essays, photographs and plans of cheese factory. The number of entries in butter was 208, in cheese 317; total entries in all classes 568. In butter the gold medal was won on a score of 97.5, the silver medal 97. In cheese, the gold medal was won on a score of 99.75, the silver medal 99.5. In milk, the gold medal was won on a score of 100, silver medal 99.5. In cream, gold medal 97, silver medal 95.

One of the educational features of the dairy exhibit ever since the first dairy building was put up in 1903 has been the exhibit of dairy machinery. Each year has seen an improvement, and this year with the very much larger space and better conveniences for installing of an especially representative exhibit, it gave an opportunity for intending purchasers to compare the different makes and from the explanations given, make a selection best suited to their needs. The amount offered in premiums in 1910 was the same, \$2,900, but there were some changes made. The premium for the best exhibit of dairy machinery was dropped and there was added a class for butter and cheese makers in judging butter and cheese with \$150 to be divided pro rata. The total number of entries was 886. On butter, the gold medal was won on a score of 97.60, the silver medal 95.66, and the best average score in the



FIG. 101.—"Big Cheese," New York State Fair, 1913.

different classes by the same maker was 93.33. On cheese the gold medal was won on a score of 99.07, silver medal 99.04. The best average score in the different classes of cheese by one maker was 98.62. On milk the gold medal score was 97.5, silver medal 37; on cream, gold medal score 93, silver medal 92.8.

The butter making competition and demonstration in the amphitheater became so popular that the premium was increased to \$220. That with the judging competition afforded entertainment to a large audience each day.

The 1911 fair was practically a repetition of 1910. The new feature that attracted a great deal of attention was the busts of Governor Dix and President Taft done in butter and set in the end of the butter refrigerator fronting on the main aisle.

In 1912 the premiums were increased to \$3,000. This brought out 944 entries; 282 in butter, 438 in cheese, 99 in milk and cream and 125 in butter making, judging butter and cheese and starters. The gold medal in cheese was won on a score of 99, silver medal 98.25. In butter the gold medal was won on a score of 99.5, silver medal 98.5. The gold medal for milk was given for a score of 96.5; silver medal, 95.25. There were 325 diplomas awarded. The big cheese that year weighed 5,527 pounds. In the exhibit of butter, one sample of dairy butter was of such high quality that the judge gave it a score of 100. This was especially interesting in that it showed what could be accomplished when the sanitary conditions were carefully looked after, and the manufacturing done in a thoroughly up-to-date manner.

For the 1913 fair, an especial effort was made to have it representative of the dairy interests, since this is one of the most important phases of the agricultural interests of the state. Three thousand dollars in money prizes was provided for the classes of dairy products, with gold and silver medals for the highest scores, and diplomas for scores above 95. The total entries were 889, divided as follows: 249 in butter, 462 in cheese, 68 in milk and cream and 103 in dairy specialties. In judging, a duplicate was made of the score, and the judges' criticism, and forwarded to each exhibitor in order that he might see wherein he had failed. The score placed upon the exhibits showed a very uniform high degree of quality. The gold medal for cheese was won on a score



FIG. 102.—CUTTING THE “BIG CHEESE” AT NEW YORK STATE FAIR, 1913.

of 99.5, silver medal 98.87; for butter, gold medal 99.5, silver medal 99.25, and for milk gold medal 96.75, silver medal 95.55. The gold medal for cream was given for a score of 99.55 and the silver medal 93.9. Five hundred diplomas were also awarded. The best average score of one maker, in the different butter classes, was 98.50, and in cheese, in the different classes, 97.68.

The novel feature of rapidly modeling the busts of prominent people in butter attracted much attention. An expert in that line of work was secured and a place arranged for him in the pit of the amphitheater where the people could sit and watch him. As a rule he succeeded in making the bust such a good likeness of the persons represented that they were easily recognized.

As previously stated, the big cheese continued to be one of the principal attractions. One of the first things people coming into the building would ask was, "Where is the big cheese?" After they found it and looked it over quite often the question was, "It is not a real cheese, is it?" In order to convince them that the cheese was real it was planned this year to make it early enough in the season to have it ripened and fit to cut in pound pieces and sell to the people visiting the dairy building during the fair. The cheese was made at Martinsburg, Lewis county, New York on July 17. It took the product of eight surrounding cheese factories to furnish the milk that was used in its manufacture.

In order to make a cheese of this size it is necessary to have a hoop and press built especially for it. It also requires two quite heavy chain pulleys and a harness to fit the cheese in order to handle it. Like a small cheese, it must be turned over quite often to prevent the moisture settling to the lower side. From this brief description it can be seen that the making of a large cheese is not a simple problem. It must be handled in a way not to crack or injure it, and that means there must be plenty of help so that by the time the large cheese is put on the platform in the dairy building it has cost quite a little more than the same amount of cheese put up in ordinary sizes. The cheese this year weighed 6,500 pounds, taking the milk from 3,300 cows one day. If it had been made up in ordinary 36-pound cheeses, it would have made 185 of them, which is as many as one of the refrigerator exhibition cases would hold.

The cutting of such a cheese is quite a problem to accomplish without waste. The method finally worked out was to measure down four and one-half inches and set a hoop there fastened so it could not get out of place. Then with a sharp knife cut the bandage at the top of the hoop and with a fine steel wire cut a slice four and one-half inches thick from the top of the cheese. With a fine steel-bladed gang knife this was cut up into one-pound pieces. Paper cartons had previously been made of a proper size to fit the blocks. These had a picture on one side showing one of the operations in the manufacture of the cheese. On the other



FIG. 103.—THE BIG CHEESE ON ITS WAY TO THE FAIR.

side was printed "Souvenir of Big Cheese at State Fair." All the help that could be utilized was secured, but it was difficult to cut and put up the cheese fast enough to supply the demand, and after it was all sold people continued to come asking for more. The quality of the cheese when cut proved to be exceptionally good, which with the novelty would account for the rapid sale.

The inception of the plan for the pyramid of varieties of cheese and later the arranging for and making of the big cheese which have been exhibited the past few years, was cared for by Horace A. Rees of Lowville, and its success has been largely the result of his executive ability and skill.

The question may be asked, "Has the attempt to stimulate interest in dairying paid?" I think it may safely be said that it has. Had it not been for the agitation of the question of better quality which was stimulated by the competition at the annual fair, the progress which has been made would not have been nearly as rapid as it has been. In the later years, the careful scoring and criticism of the exhibits has become a matter of education. In some of the western states, judging of samples of butter and cheese is done each month at the state experimental station in order to prevent any dropping back in quality. The New York State Agricultural College furnishes the most up-to-date instruction possible in dairying. Under the Department of Agriculture of New York State competent instructors are constantly visiting the factories and creameries to check up the work of the makers. Farmers' institutes are held for discussion of all these questions. Together with all of these agencies, the State Experiment Station is constantly working to solve the problems that come to perplex the dairymen, and sending out published statements of the results of their work. It would seem that with all of these agencies working for him, it should not be so difficult a problem for the dairyman who is really interested and trying to do good work, to succeed.

THE DAIRY PAPER

W. D. HOARD, Editor

Hoard's Dairyman, Fort Atkinson, Wisconsin



Many are the forces that have united to bring to its present magnitude this great dairy industry. It is now over forty years since I commenced my public activities in its behalf. As I look over the pathway of progress, it seems remarkable that there should have existed in the minds of men such unity of sentiment, such unselfish devotion to the good of the cause, such steadfastness of effort and such conspicuous ability. All is centered in the one purpose of promoting the knowledge, skill and prosperity of the dairy farmers of America.

It is useless to attempt to explain how or why all this is true. The fact that it is true has, from the first, led the efforts of men forward and onward. Always in the minds of its devotees the industry itself has been bigger and more compelling in its influence upon their efforts, than could be measured or accounted for by individual ambition and self interest.

From the early days we see men devoting themselves to the work of organization, to the enactment of wise and just laws in its defense, to the creation of schools for dairy education, to the study of the relations of science, to the work of invention and, not least of all, to the creation of a sound and instructive dairy literature. Every great industry must have its literature, for here are concentrated the records of human achievement and experience, that are invaluable and which would otherwise be lost. Think what a repertory of history relative to dairy progress can be found in the files of Hoard's Dairyman, for the one thousand seven hundred

twenty-eight numbers that have been issued, since it first commenced its work. These years stretch back for a third of a century, while the Jefferson County Union, its humble predecessor, was in the field for fifteen years before the first issue of the Dairyman. It is difficult to look over all these eventful years and secure a comprehensive perspective of what has occurred.

Dairy papers in the early days partook of the general lack of knowledge of that day and hour. They were launched with fear and trembling. The first issue of Hoard's Dairyman was a small four-page sheet, and so continued for some time. It was very difficult to convince the farmer of those days, that there was anything in it for him. The strong conceit that he alone was practical and that he could learn nothing from such reading, covered the minds of men like a thick cloud — and it is not yet all dispelled. It is a notable truth that in the history of every farmer, and farming community, real dairy progress has been had just in proportion as dairy literature has circulated. The reason for this is:

Dairy farming calls for a large outlay of intellectual capacity. It is essentially a work of brains. For that reason it compels the man, who would win its best results, to keep his mind alert and constantly strengthened by the best reading he can get. Just in proportion as the farmers have been induced to become reading, thoughtful men have they made intelligent growth and financial progress in this pursuit. Their observation becomes more critical, their judgment more comprehensive and accurate and their methods of practice more truly practical, for the reason that their intellect has been quickened by their reading.

The cow census work carried on by Hoard's Dairyman in thirteen states, comprehending in its survey over 27,000 cows and more than 2,000 farmers and which has been summarized in Government Bulletin No. 164, had for one of its specific objects the determination of the effect of dairy reading or a lack of it on the prosperity of the dairy farmer.

No such massing of conclusive testimony on this, and many

other important conclusions, had ever been attempted. In this census it was shown that the profits of dairy farmers were greatly enhanced by the habit of reading dairy papers and books. The following extracts from that bulletin are very significant. In the census No. 10 taken in New York the expert says:

"The two men who are specially noted as great readers and students of dairying receive respectively \$2.21 and \$2.37 for each dollar spent in feed. The average gain to those who read over those who do not read amounts to \$7.06 per year for each cow."

In one of the canvasses in Iowa the expert testifies:

"The dairymen, who reads dairy literature, secures nine times the net profit of the non-reader. Those who read made 28 cents on the dollar net profit, while those who do not read made 3 per cent."

Of the canvass No. 12 in Ohio the expert tells us:

"Readers of dairy literature receive four times the net profit of those who do not read."

"The one great paramount conclusion overtopping all others is that loss of profit in dairying is accounted in nine cases out of ten by a lack of sound, dairy intelligence on the part of the farmer who is behind the cow."

The dairy press has been a sheet anchor to the Agricultural College and the Experiment Station. It has done pioneer service in preparing the minds of farmers for a right understanding of such experimental work and in overcoming prejudice and indifference.

The mental activity that exists in dairy circles at the present time is without precedent in the history of the world. Great railroads are sending dairy trains along their lines for the instruction of the farmers. Mammoth business corporations are devoting immense sums of money to the spreading of important knowledge concerning alfalfa, silos and the right breeding of dairy cattle. Bankers all over the continent are asking what they can do to promote the sum of knowledge and understanding in this subject. Science has given some of her proudest achievements, like the Babcock test, to the cause. That great and wonderful

concentration of the industry, the National Dairy Show, is convincing evidence of the marvelous progress of the nation in this direction. Amid it all the true dairy journal stands as guide, counselor and defender of this, the greatest of all branches of American agriculture.

TABLE NO. 1.—STATISTICS RELATIVE TO DAIRYING IN NEW YORK STATE
Taken from U. S. Census, 1910

COUNTY	Number dairy cows	Number calves	Milk produced (gallons)	Cream sold	Butter fat sold	Butter produced	Cheese produced	Value of dairy products*
Albany.....	13,483	4,748	4,502,221	6,825	1,195,016	355,129	5,856	\$821,380
Allegany.....	39,573	16,278	13,668,109	12,859	426,311	535,177	11,158	1,748,645
Broome.....	29,648	7,116	12,857,144	2,213	547,404	410,291	2,964	1,602,869
Cattaraugus.....	59,779	20,484	21,911,772	158,045	505,298	549,026	350	2,678,930
Cayuga.....	27,199	8,690	10,883,667	14,057	1,882,082	347,745	7,286	1,295,343
Chautauqua.....	49,648	20,161	16,381,694	46,115	2,438,844	482,765	5,476	2,097,464
Chemung.....	11,035	2,939	4,015,752	11,753	435,633	182,373	6,200	545,202
Chenango.....	50,711	12,372	24,059,054	2,001	537,241	128,452	300	2,975,681
Clinton.....	25,032	7,989	7,011,960	63,981	468,522	406,131	50	838,445
Columbia.....	16,126	3,292	5,098,779	21,513	90,011	790,296	230	783,802
Cortland.....	27,427	6,878	12,104,773	4,143	216,367	144,343	165	1,595,671
Delaware.....	78,073	15,164	33,004,538	34,266	1,584,548	349,130	540	4,762,996
Dutchess.....	31,241	5,259	14,305,855	47,597	431,094	434,589	1,824	2,131,838
Erie.....	44,331	10,236	19,171,359	11,076	1,082,351	636,829	142,251	2,403,204
Essex.....	10,634	3,626	3,379,292	12,516	454,400	361,867	.....	355,503
Franklin.....	28,964	9,876	9,330,800	30,639	1,052,671	318,201	.....	1,174,737
Fulton.....	9,835	2,896	3,746,189	2,658	6,200	643,935	.....	437,818
Genesee.....	13,768	3,243	5,512,372	17,917	369,541	589,931	1,000	652,155
Greene.....	15,423	4,961	5,425,794	6,676	1,662,050	316,060	4,125	746,294
Hamilton.....	1,183	346	490,625	60	32,669	77,413	.....	36,099
Herkimer.....	40,423	13,701	16,766,058	11,265	550,095	189,820	4,100	2,199,633
Jefferson.....	64,855	23,607	25,817,575	7,801	949,974	604,473	3,654	3,368,052
Kings.....	113	.....	78,130	36	.....	49	170	18,705
Lewis.....	36,291	11,827	14,627,061	626	208,857	387,922	6,405	1,663,908
Livingston.....	17,859	5,510	6,678,149	49,918	430,718	610,978	2,320	852,790
Madison.....	36,994	8,564	15,188,554	4,349	366,733	202,863	160	2,275,039
Monroe.....	17,198	4,597	7,680,902	12,994	359,539	1,281,766	4,930	869,181
Montgomery.....	22,804	6,725	11,123,057	3,377	449,839	236,592	950	1,299,769
Nassau.....	2,389	397	1,111,278	770	.....	52,708	50	177,563

New York.....	266	43	164,693	167	1,800	1,466	40	50,480
Niagara.....	13,058	3,208	5,070,701	9,641	293,751	1,026,741	2,593	553,713
Oneida.....	64,779	15,931	28,316,062	20,225	844,243	435,605	5,445	3,462,287
Onondaga.....	36,330	10,043	15,458,067	33,755	1,392,198	411,418	21,895	2,123,637
Ontario.....	13,272	3,864	5,599,195	15,482	837,855	580,405	840	535,985
Orange.....	45,882	5,973	23,905,147	7,126	360	212,111	2,161	3,570,647
Orleans.....	7,247	2,600	2,598,716	7,968	395,020	392,708	2,667	238,625
Oswego.....	40,774	14,247	12,778,780	11,586	409,238	412,270	.....	1,950,833
Otsego.....	52,920	14,315	22,404,721	24,108	1,188,927	235,773	.....	2,826,725
Putnam.....	8,425	1,053	4,207,340	4,593	61,278	62,531	1,258	573,898
Queens.....	1,968	48	1,689,635	.....	2,600	11,788	9,152	293,747
Rensselaer.....	19,804	4,060	7,767,542	.....	744,903	454,152	30,916	1,252,398
Richmond.....	704	61	472,811	57,016	.....	485	.....	128,785
Rockland.....	2,268	533	995,655	.....	21,057	58,907	2,620	161,552
St. Lawrence.....	100,537	35,445	36,484,918	85,184	1,487,320	463,227	13,550	4,491,072
Saratoga.....	16,224	4,379	5,792,769	17,305	759,121	441,853	8,397	787,410
Schenectady.....	4,929	1,577	1,500,470	7,730	191,740	198,658	.....	253,598
Schoharie.....	26,138	7,173	9,056,972	15,692	2,398,411	236,813	130	1,443,765
Schuyler.....	5,945	1,951	2,590,149	6,439	103,820	641,743	170	228,262
Seneca.....	7,439	2,014	2,900,511	9,524	144,478	565,500	.....	274,300
Steuben.....	37,599	14,775	10,462,240	40,536	1,430,723	1,067,709	2,639	1,455,994
Suffolk.....	5,996	1,615	1,997,245	3,007	3,026	222,677	39,455	320,171
Sullivan.....	21,230	5,672	5,681,108	3,267	302,822	670,541	1,183	770,830
Tioga.....	16,430	4,366	6,968,926	2,950	328,059	189,622	6,555	865,989
Tompkins.....	15,008	4,413	5,255,179	10,795	445,412	386,700	.....	774,753
Ulster.....	23,065	6,296	9,601,802	3,571	748,829	602,111	.....	1,111,721
Warren.....	5,397	1,400	2,158,564	1,766	171,264	312,464	4,975	216,502
Washington.....	28,169	9,791	11,218,699	27,765	665,576	254,194	100	1,367,254
Wayne.....	20,645	7,193	8,105,200	55,219	1,223,897	538,869	12,711	942,530
Westchester.....	11,475	2,182	6,236,330	8,327	.....	221,407	2,108	809,865
Wyoming.....	28,066	8,638	11,627,232	115,069	541,200	191,717	3,442	1,368,403
Yates.....	5,566	1,988	2,273,306	8,922	376,681	332,678	2,048	1,192,714
The State.....	1,509,594	438,329	597,363,198	1,207,174	36,249,617	23,461,702	390,049	\$77,807,161

* Excluding home use of milk and cream.

	1850	1860	1870	1889	1890	1900	1910
Cows.	931,324	1,123,634	1,350,661	1,437,855	1,440,230	1,501,608	1,509,594
Butter.	79,766,094	103,067,280	107,147,526	120,878,201	112,727,515	115,408,222	69,358,918
Cheese.	49,741,413	48,548,289	100,776,012	129,103,714	124,086,524	130,010,584	105,584,947
		53.40		89.53	86.15	86.58	45.94
				84.06	78.27	76.85	69.94

	1850	1860	1870	1889	1890	1900	1910
Cows.	931,324	1,123,634	1,350,661	1,437,855	1,440,230	1,501,608	1,509,594
Butter.	79,766,094	103,067,280	107,147,526	120,878,201	112,727,515	115,408,222	69,358,918
Cheese.	49,741,413	48,548,289	100,776,012	129,103,714	124,086,524	130,010,584	105,584,947
		85.75	70.32	84.06	78.27	76.85	45.94
		53.40	74.61	89.53	86.15	86.58	69.94

TABLE NO 3.— CATTLE BREEDER'S PERPETUAL CALENDAR

Days of Month served	Served in January will calve	Served in February will calve	Served in March will calve	Served in April will calve	Served in May will calve	Served in June will calve	Served in July will calve	Served in August will calve	Served in September will calve	Served in October will calve	Served in November will calve	Served in December will calve
1.....	Oct. 13	Nov. 13	Dec. 11	Jan. 11	Feb. 10	Mar. 13	April 12	May 13	June 13	July 13	Aug. 13	Sept. 12
2.....	14	14	12	12	11	14	13	14	14	14	14	13
3.....	15	15	13	13	12	15	14	15	15	15	15	14
4.....	16	16	14	14	13	16	15	16	16	16	16	15
5.....	17	17	15	15	14	17	16	17	17	17	17	16
6.....	18	18	16	16	15	18	17	18	18	18	18	17
7.....	19	19	17	17	16	19	18	19	19	19	19	18
8.....	20	20	18	18	17	20	19	20	20	20	20	19
9.....	21	21	19	19	18	21	20	21	21	21	21	20
10.....	22	22	20	20	19	22	21	22	22	22	22	21
11.....	23	23	21	21	20	23	22	23	23	23	23	22
12.....	24	24	22	22	21	24	23	24	24	24	24	23
13.....	25	25	23	23	22	25	24	25	25	25	25	24
14.....	26	26	24	24	23	26	25	26	26	26	26	25
15.....	27	27	25	25	24	27	26	27	27	27	27	26
16.....	28	28	26	26	25	28	27	28	28	28	28	27
17.....	29	29	27	27	26	29	28	29	29	29	29	28
18.....	30	30	28	28	27	30	29	30	30	30	30	29
19.....	31	Dec. 1	29	29	28	31	30	31	July 1	31	31	30
20.....	Nov. 1	2	30	30	Mar. 1	April 1	May 1	June 1	2	Aug. 1	Sept. 1	Oct. 1
21.....	2	3	31	31	2	2	2	2	3	2	2	2
22.....	3	4	Jan. 1	Feb. 1	3	3	3	3	4	3	3	3
23.....	4	5	2	2	4	4	4	4	5	4	4	4
24.....	5	6	3	3	5	5	5	5	6	5	5	5
25.....	6	7	4	4	6	6	6	6	7	6	6	6
26.....	7	8	5	5	7	7	7	7	8	7	7	7
27.....	8	9	6	6	8	8	8	8	9	8	8	8
28.....	9	10	7	7	9	9	9	9	10	9	9	9
29.....	10	.....	8	8	10	10	10	10	11	10	10	10
30.....	11	.....	9	9	11	11	11	11	12	11	11	11
31.....	12	.....	10	.....	12	.....	12	12	.....	12	.....	12

Period of gestation calculated at 285 days.

Left hand column, date of service; column for month, date of calving.

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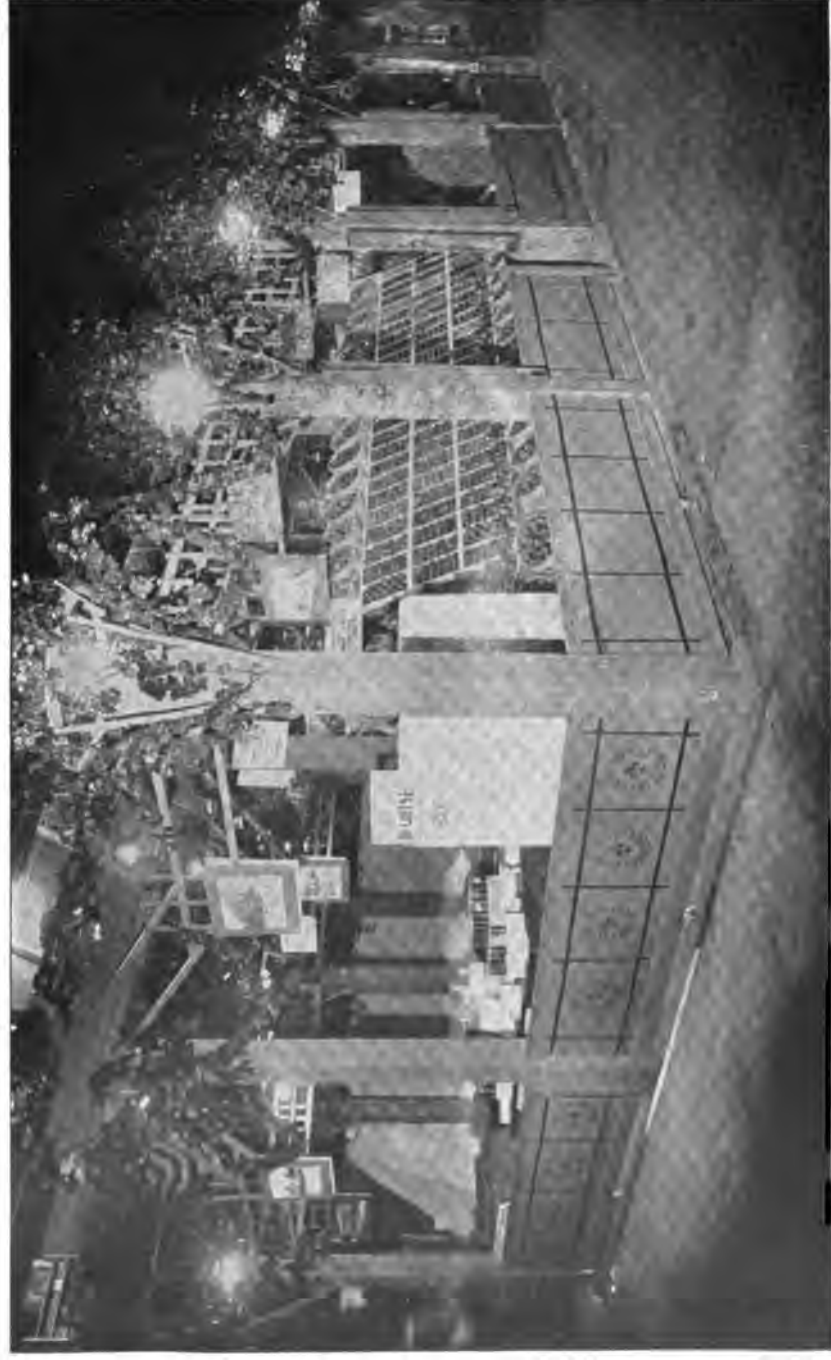


FIG. 104.—GENERAL VIEW OF NEW YORK STATE AGRICULTURAL EXHIBIT, CHICAGO LAND SHOW, 1913.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE
CALVIN J. HUSON, Commissioner

Bulletin 55

Farms for Sale or Rent
in New York

(Occupied and Unoccupied)

Compiled by
Bureau of Statistics and Farm Lands

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PREFACE

The publication of this bulletin, containing a list of over one thousand farms in New York State for sale or rent, may convey an entirely erroneous impression to the reader. It is to establish a correct view of the actual condition that this preface is written.

New York State has one-tenth of the population of the United States, or nearly ten million people within its borders, and of this number more than seventy-eight per cent. are living in cities or villages. To stimulate agricultural production, in order to feed this enormous number of non-food-producing people as far as possible from New York farms, is the immediate and imperative duty of this Department, as well as every agricultural agency of the state.

It is no doubt true that a certain limited area of our land should never have been cleared of its forests or converted into farms for which there could have been, at the time of clearing, very little economic need, and it is from this very limited area that the term "Abandoned Farm" came. At present there are, strictly speaking, no abandoned farms in this state; there are farms, to be sure, which lack farmers and have been neglected and are offered for sale at low prices, but there is no part of our agricultural lands on which profitable farming may not be done. The production per acre of any of the farm crops in New York State is a complete answer to the assertion that our farms are cheap because they are poor or worn out. New York farms are relatively cheap for several reasons:

First. The financial rewards offered by our many cities, large and small, scattered over our entire area, have attracted our farmers' sons and daughters more powerfully than in any of our sister states. These rewards have been greater than elsewhere and they have been exhibited closer to our farmers.

Second. Through a long period the West has had the great advantage of unlimited publicity of its agricultural advantages, and our farmers have formed an unending procession westward, where they succeeded and whence they in turn drew new recruits from New York farms.

Third. The very prosperity of our New York State farmers, evidenced by the fact that the percentage of mortgage indebtedness on our farms is lower than that of almost any other state, has helped to depopulate our farm lands of actual landowners. Our farmers

have in many instances retired from their farms to enjoy the easier life of the cities and villages, and the farms so left have always been a check on any very appreciable rise in farm values.

All these considerations should explain the conditions which lead to the publication of this and similar bulletins by this department.

To-day New York farms offer to the farmer who is in the farming business to make money, and who demands the very necessary educational and social advantages, unequalled opportunities. New York markets are the best; New York transportation, steam, electric, and water, is approached by that of no other state, and New York highways furnish to all parts of the state the last and most necessary link to connect the farm with the consumer. A personal investigation of all conditions surrounding the farm, as well as of the farm itself, should by all means be made by any prospective purchaser, and New York State farms will creditably bear such an investigation, in which this department will gladly cooperate.

Every farm listed herein has been certified to the Agricultural department, but this department does not sell these farms, nor does it act as agent for any of them.

It is our desire to have every acre of New York farm land occupied by the best possible farmer, to the end that both the farmer and the farm may prosper, and the department stands ready to give any assistance in its power and all possible information to anyone interested, to accomplish this desirable result.

CALVIN J. HUSON,
Commissioner of Agriculture.

FARMS THAT MAY BE RENTED, INDICATED BY NUMBER.

Nos. 12, 17, 25, 26, 32, 33, 34, 35, 37, 38, 39, 63, 70, 72, 84, 85, 86, 88, 90, 92, 99, 100, 108, 109, 113, 118, 125, 126, 127, 128, 131, 141, 156, 159, 163, 173, 194, 199, 221, 236, 243, 249, 254, 263, 279, 281, 292, 295, 328, 330, 336, 340, 348, 350, 351, 371, 372, 406, 420, 423, 425, 426, 431, 432, 443, 445, 447, 448, 451, 466, 474, 476, 483, 485, 487, 488, 490, 540, 541, 551½, 552, 554, 556, 568, 577, 590, 603, 611, 616, 629, 636, 637, 638, 643, 661, 678, 679, 716, 718, 727, 737, 738, 740, 744, 746, 749, 751, 756, 781, 785, 788, 808, 818, 833, 852, 869, 902, 903, 904, 908, 921, 923, 924, 925, 954, 958, 959, 974, 975, 978½, 984, 985, 990, 994, 995, 1002, 1004, 1012, 1014, 1021, 1025, 1028, 1039, 1047, 1048, 1051, 1053, 1054, 1055, 1062, 1076, 1081, 1104, 1109, 1111, 1112, 1121, 1125, 1128, 1134, 1139, 1153, 1154, 1158.

NEW YORK FARMS

ALBANY COUNTY

Area, 527 square miles. Population, 173,666. Number of farms, 3,146. Average value of farm lands per acre, \$49.61. Annual total precipitation, 38.77 inches. Annual mean temperature, 50.3°. County seat, Albany.

Located in the eastern part of the state on the western bank of the Hudson River.

Surface features are undulating and hilly, with a general drainage to the east. The soil upon the intervalles is a deep, rich alluvial loam. A considerable extent of the northeastern portion of the county is sand with strips of clay along the streams. Between this sand region and the foothills of the Helderbergs is a belt of clay and gravelly loam, very productive. Rye, barley, hay, potatoes, vegetables, dairy products and poultry are the chief products. The county is traversed by excellent lines of communication, by steam, water and trolley.

The educational and religious advantages are, like all the counties of the state, unsurpassed. Besides the excellent city schools there are 146 district schools, and a State Normal College located at Albany. There are about 1,000 miles of state and county improved roads.

The value of all the farm property is \$17,742,896, an increase of 11.8 per cent. since 1900. Two thousand nine hundred and forty-six farms report domestic animals consisting of dairy cows, 13,483; horses, 8,780; swine, 13,607; sheep, 17,070; poultry, 171,339. There are fourteen agricultural organizations for the purpose of promoting farming interests and social life on the farm.

TOWN OF BETHLEHEM

Population 4,413

No. 1—Farm of 105 acres; located 1 mile from Delmar P. O. and railway station, on line of D. & H. R. R.; 1 mile from school and Protestant churches. Highways, somewhat hilly. Nearest large city, Albany, 5 miles distant, population, 100,000, reached by rail and highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 35; in timber, 7; second growth, hardwood. Acres tillable, 95. Fruit, 100 apple, 30 plum, 20 pear, 40 peach and 10 cherry trees; also currants, raspberries, etc. Best adapted to hay, grain, corn and potatoes. Fences, wire, fair condition. House, 26x30 with wing, 25x30. Outbuildings, barn, 40x50, wagon house, 25x25, shed 40x20, shed 60x26. Watered, house by well and cistern; barn by cistern; fields by well and springs. This farm is located $\frac{1}{2}$ mile from Helderberg Mountains; 6 miles from Hudson River; Normanskill Creek on one side of farm. Occupied by owner. Reason for selling, owner is engaged in other business.

Price, \$100 per acre. Terms, part cash. Address G. W. McCormick, Delmar, N. Y.

*No. 2—Farm of 198 acres, located 5 miles from Albany P. O.; 2 miles from railway station at Glenmont, on line of W. S. Ry.; $\frac{1}{2}$ mile from school; 1 mile from churches; 3 miles from butter factory, and 2 miles from milk station. Highway, State road. Nearest city, Albany, population 100,000, 5 miles distant, reached by highway. Surface, rolling and level. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 20; in timber, 10; pine, oak, etc. Acres tillable, 180. Fruit, apples, pears and plums. Best adapted to hay, rye, oats, corn, potatoes, etc. Fences, mostly wire and wall, fair condition. House, large, two families, good condition. Large barns, wagon house, sheds, etc., first-class condition. Watered, house and barns by well, fields by springs and streams. This farm is 2 miles from the Hudson River. Occupied by tenant. Reason for selling, owner lives in city and cannot attend

* Indicates farm is in hands of agent or real estate dealer.

to farm. Price, \$12,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. There is a large amount of moulding sand on this farm which could be sold. Address, John D. White, agent, Altamont, N. Y.

No. 3—Farm of 75 acres; located $\frac{1}{2}$ mile from South Bethlehem P. O., R. D. 1, and a railway station on line of N. Y. C. and W. S. Ry.; $\frac{1}{4}$ mile from school and churches; 4 miles from butter factory and milk station. Highways, good. Nearest city, Albany, 9 miles distant, population 100,000, reached by rail and highway. Surface of farm, rolling. Soil, gravelly. Acres in meadow, 10; in natural pasture, 5. Acres tillable, all except woodland. Fruit, 250 apple trees, 150 plum trees, also peaches and grapes. Best adapted to rye and corn. Fences, wire, fair condition. House, 35x45 with wing. Barn, 40x50; stables, 25x30. Watered, house by well and cistern, barn and fields by creek. Occupied by owner. This farm is 8 miles from Warner's Lake. Reason for selling, owner desires larger farm. Price, \$1,500. Address Christopher Lyons, South Bethlehem, N. Y.

TOWN OF COLONIE

Population 8,385

*No. 4—Farm of 36 acres; located 4 miles from Watervliet P. O.; 4 miles from railway station at Watervliet, on line of D. & H. R. R.; $\frac{1}{4}$ mile from school; 1 mile from churches. Highways, good; 1 mile from two State roads. Nearest large cities, Troy, Albany and Cohoes, distant 4-5 miles, reached by highway. Surface of farm, level. Soil, good sandy loam. Acres in meadow, 35; in timber, 4, second growth; all tillable. Fruit, 300 apple trees, old but good; 50 plum, cherry and pear trees. Best adapted to fruit, berries and garden truck. Fences, wire, in fair condition. House, 14 rooms, in excellent condition. Barns, large, new and excellent; 2 big poultry houses. Watered, house and barns by wells. Occupied by owner. Reason for selling, unable to work farm. Price, \$5,250. Terms, \$1,000 cash, or will take city property in exchange. Address Frank H. Knox, agent, 51 State St., Albany, N. Y.

*No. 5—Farm of 14 acres; located 7 miles from Watervliet P. O., and railway station, on line of D. & H. R. R.;

$\frac{1}{2}$ mile from school; $\frac{1}{4}$ mile from Protestant church. Highways, State road. Surface of farm, rolling. Soil, sandy loam, all tillable. Entire farm in berries and fruit as follows: Apples, pears, plums, cherries, grapes, gooseberries, strawberries and raspberries. Best adapted to garden truck and fruit. Fences in fair condition. House, built two years, 6 rooms. Barn has new shingle roof. House has pneumatic water supply; barns watered by well; fields by springs. This farm is in sight of Mohawk River. Occupied by tenant. Reason for selling, owner lives in city. Price, \$7,500. Terms easy. Address Frank H. Knox, agent, 51 State St., Albany, N. Y.

*No. 6—Farm of 30 acres; located $3\frac{1}{2}$ miles from Watervliet P. O.; 1 mile from Schenectady and Troy trolley line; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from churches. Highways, macadamized. This farm is $3\frac{1}{2}$ miles from Watervliet; 4 miles from Troy; 5 miles from Albany, and 6 miles from Cohoes. Surface of farm, nearly level. Soil, sandy loam. Acres in timber, 4. Acres tillable, 26. Fruit, large apple orchard and all kinds of small fruit. Best adapted to general crops and gardening. House, large, 14 rooms. Outbuildings, large barn, carriage barn, two hen houses, hog house and corn house, all in good condition. Watered by well, springs and brooks. Occupied by owner. Reason for selling, ill health and advanced age of owner. Price, \$5,250. Terms, mortgage of \$1,200 can remain. Address W. B. Vail, agent, 469 State St., Schenectady, N. Y.

*No. 7—Farm of 150 acres; located 2 miles from Cohoes P. O., R. D. 1; $2\frac{1}{2}$ miles from railway station at Crescent, on line of N. Y. C. R. R.; 1 mile from school and churches. Highways, part State road, part good dirt road. Surface of farm, level. Altitude, 300 feet. Soil, clay loam, some dark loam. Acres in meadow, 96; in natural pasture, 48; in timber, 3. Acres tillable, 125. Fruit, 150 apple trees. Best adapted to hay and grain. Fences, wire. House, 10 rooms, good condition; also tenant house, 5 rooms, good condition. Outbuildings, hay barn, 75x28; creamery, 45x30; two ice houses, one 25x40 and one 18x32; tool house, wagon house and silo.

* Indicates farm is in hands of agent or real estate dealer.

Watered by windmill. This farm is $\frac{3}{4}$ mile from the Mohawk River. Occupied by tenant. Reason for selling, owner in other business. Price, \$11,000. Terms, $\frac{1}{2}$ cash, discount for all cash. Address Wm. J. Battin, agent, Watervliet, N. Y.

*No. 8—Farm of 10 acres; located $2\frac{1}{2}$ miles from West Albany P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from churches. Highways in good condition. Nearest city, Albany, $3\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, part level and part rolling. Altitude, 250 feet. Soil, sandy loam. All tillable. Fruit, apples, pears, plums and cherries, 40 trees in all. Best adapted to garden truck or poultry farm. House, 2 stories, spring water in kitchen by force pump. Outbuildings, barn, 36×26 , and chicken houses. Occupied by owner. Reason for selling, owner in other business. Price, \$1,600. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address Wm. J. Battin, agent, Watervliet, N. Y.

TOWN OF GREEN ISLAND

Population 4,737

No. 9—Farm of 114 acres; located in Village of Green Island, $\frac{3}{4}$ of a mile from railway station at Green Island, on line of D. & H. and N. Y. C. Rys, near school and churches. Highways in good condition. Surface of farm, generally level and slightly rolling. Address the Estate of G. M. Tibbits, Troy, N. Y.

TOWN OF GUILDERLAND

Population 3,333

*No. 10—Farm of 71 acres; located $\frac{3}{8}$ mile from Guilderland Center P. O.; $\frac{3}{8}$ mile from railway station at Guilderland Center on line of West Shore R. R.; $\frac{1}{4}$ mile from school and churches; $\frac{3}{8}$ mile from milk station; $\frac{1}{4}$ mile from State road. Highways, excellent. Nearest cities, Schenectady, 6 miles distant, and Albany, 11 miles distant, reached by highway. Surface of farm, level. Soil, clay loam. Acres in meadow, 30; in natural pasture, 10; in timber, 6, large pine, hemlock and oak; acres tillable, 65. Fruit, 150 apple trees, thrifty and bearing, 200 set four years. Best adapted to hay, grain, corn, fruit. Fences, wire, in good condition. House, 10 rooms, in good condition. Outbuild-

ings, barn, 32×46 ; barn, 24×65 ; barn, 24×26 ; cow barn, 14×16 ; two sheds, all in good condition. Watered, house and barns, by well; fields, by brook. Fine view of Helderberg Mountains. Occupied by tenant. Reason for selling, owner lives in city. Price, \$6,000. Terms, \$3,500 cash or might exchange for city property. Address F. H. Knox, agent, 51 State St., Albany, N. Y.

No. 11—Farm of $40\frac{1}{2}$ acres, located 3 miles from Altamont P. O., R. D. 2; $1\frac{1}{2}$ miles from railway station at Meadowdale, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Reformed and Lutheran churches. Highways, good. Nearest large village, Altamont, population 674, 9 miles distant; Schenectady, 11 miles distant; Albany, 13 miles distant; reached by both railroad and highway. Surface of farm, nearly level. Soil good. Acres in meadow, 30; in timber, 1; all tillable. Fruit, 40 plum, 40 apple, 19 cherry, 10 peach and 12 pear trees. Best adapted to corn, rye, hay and oats. Fences, in good condition. House, 21×40 , in fine condition. Main barn, 26×40 ; wagon house attached, 18×50 ; horse barn, 18×40 ; stables attached; hogpen, 15 feet square; henhouse, 12×30 ; all in good condition. Watered by wells and never-failing springs. This property is located 1 mile from the Helderberg Mountains, 4 miles from Thompson's Lake, and 2 miles from Indian Ladder. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,000. Terms, \$1,500 down, balance on mortgage. Address Aaron Van Schaack, Altamont, N. Y., R. D. 2.

No. 12—Farm of 81 acres; located $\frac{1}{2}$ mile from Guilderland Center P. O., $\frac{3}{4}$ mile from railway station at Guilderland Center, on line of West Shore Ry.; $\frac{1}{4}$ mile from school and churches; $\frac{3}{4}$ mile from milk station. Highways, macadamized, good. Nearest cities, Albany, 11 miles, population 100,000, and Schenectady, 8 miles, population 75,000, reached by rail and highway. Surface of farm, level. Altitude, high. Soil, gravelly, good. Acres in meadow, 25; acres tillable, 81. Fruit, 950 apple trees, 200 pear trees, 40 cherry trees and 25 plum trees. Best adapted to rye, corn and hay. Fences, wire and board, good.

* Indicates farm is in hands of agent or real estate dealer.

House, 30x40, 13 rooms, good. Outbuildings, barn, 38x52; wagon house and horse stable, 24x48; carriage house, 16x24; shed, 20x38; hen and pig house, 14x32; cow stable, 18x32; ice house and cream room, 14x20, good. Watered, house by well and cistern, barns by two large cisterns, fields by well. This farm is 3 miles from Helderberg Mountains, 6 miles from Thompson's and Warner's Lakes, $\frac{1}{2}$ mile from Normanskill Creek and 11 miles from Hudson River. Occupied by tenant. Reason for selling, owner has other business. Price, \$9,000. Terms, \$3,000 cash. Address Ira Hurst, Guilderland Center, N. Y. Owner will rent on shares or with option to buy.

*No. 13 — Farm of 140 acres; located 7 miles from Schenectady, $2\frac{1}{2}$ miles from Altamont, on line of D. & H. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from churches and milk station. Highways, good. Surface of farm, rolling and level. Soil, gravel and clay loam. Acres in natural pasture, 15. Acres tillable, 120. Best adapted to general farming and dairying. House, 12 rooms, good condition. Outbuildings, large hay barn and large horse barn; also carriage house, in fair condition. Watered by well, springs and creeks. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,000. Terms, half cash. Address Walter B. Vail, agent, 469 State street, Schenectady, N. Y.

TOWN OF KNOX
Population 1,007

No. 14 — Farm of 200 acres; located $1\frac{1}{2}$ miles from P. O., R. D.; $4\frac{1}{2}$ miles from railway station at Altamont, on line of D. & H. R. R.; $1\frac{1}{2}$ miles from school and churches and 3 miles from butter factory. Highways, good. Nearest large village, Altamont, population 674, $4\frac{1}{2}$ miles distant, reached by highway. Surface of farm, level and rolling. Soil, fertile loam. Acres in meadow, 60; in natural pasture, 25; 10 acres in rye; in timber, 15, hemlock, beech, etc. Acres tillable, 185. Fruit, about 50 apple trees, pears and currants. Best adapted to hay, oats, rye, buckwheat, potatoes and corn. Fences, wire, wall and rail, in fair condition. House, 20 rooms, 20x60, in fair condition, built for two families. Outbuildings, main barn, 40x54; hay barn, 42x36; wagon house, 40x20; shed

and henhouse, 24x50, in fair condition; hog house, 12x18, and henhouse, 10x12, new. Watered, house by cistern and well; barns by pond and well; fields by ponds, wells and springs. This farm is 4 miles from Thompson's and Warner's Lakes, both noted summer resorts. Reason for selling, to settle an estate. Price, \$3,800. Terms, \$1,500 down, balance on mortgage. Address Millard Frink, Altamont, N. Y.

No. 15 — Farm of 170 acres; located $1\frac{1}{4}$ miles from Berne P. O., R. D. 1, 5 miles from railway station at Altamont, on line of D. & H. R. R.; $1\frac{1}{4}$ miles from school and Protestant churches; 3 miles from cheese factory; 5 miles from milk station; 6 miles from milk condensing plant. Highways, good. Surface of farm, part rolling, sloping to east. Soil, fertile loam. Acres in meadow, 160; in timber, 10, pine, hemlock, elm and ash. Acres tillable, 160. Fruit, 50 apple, 12 pear, 15 plum and 5 cherry trees; also currants, berries and grapes. Best adapted to hay, oats, buckwheat, corn and potatoes. Fences, stone and wire, good condition. House, 46x24; wash house and wood-house, 20x24. Outbuildings, barn, 40x46, shed attached, 24x46; barn, 22x70, with 5 stalls for horses; wagon house, 24x60; sheep house, 20x30; ice house, 20x16; hog house, 16x24; machine house, 26x36; henhouse, 16x24. Watered, house by well and cistern, barns by well, fields by never-failing spring. This farm is 5 miles from Thompson's and Warner's Lakes. Occupied by tenant. Reason for selling, ill health of owner. Price, \$6,000. Terms, cash or part cash and remainder on easy terms. Address Amaziah Saddlemire, Knox, N. Y., Box 33.

No. 16 — Farm of 180 acres; located 4 miles from Berne P. O., R. D. 1; 7 miles from railway station at Altamont, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{4}$ miles from Protestant churches; 4 miles from cheese factory and milk station; 7 miles from milk condensing plant. Highways, good. Nearest large village, Altamont, 7 miles distant, reached by highway. Surface of farm, mostly level. Soil, fertile loam. Acres in meadow, 150; in timber, 30, pine, hemlock, beech and maple. Acres tillable, 150. Fruit, 40 apple, 6 pear and

* Indicates farm is in hands of agent or real estate dealer.

plum trees. Best adapted to hay, oats, buckwheat, corn, potatoes and hops. Fences, stone and wire. House, 32x24, with kitchen and wood house attached, 20x20, good condition. Outbuildings, good barn, 32x46; barn, 32x50; cow barn, 32x40; wagon house, 20x26; hop house, 20x44; hog house, 16x20. Watered, house by cistern and well, barns by creek and well, fields by creek and spring. Occupied by tenant. This farm is 6 miles from Thompson's and Warner's Lakes. Reason for selling, ill health of owner. Price, \$5,000. Terms, cash or part cash. Address Amaziah Saddlemire, Knox, N. Y., Box 33.

TOWN OF NEW SCOTLAND
Population 2,834

No. 17 — Farm of 180 acres; located 4 miles from Voorheesville P. O. and railway station, on line of D. & H. and W. S. R. R.; $\frac{1}{2}$ miles from school; 1 mile from Protestant church. Nearest city, Albany, 12 miles distant, reached by rail and highway. Surface of farm, quite level. Soil, mostly limestone. Acres in natural pasture, 10; in timber, 40, hemlock, pine and hardwood. Acres tillable, 120. Fruit, a few apples. Best adapted to grain and hay. Fences, in fair condition. Large house. Outbuildings, large and in fair condition. Watered, house by wells, barn by pond, fields by springs. Occupied by tenant. Reason for selling, owner a widow and cannot work property. Price, \$3,500. Terms easy. Address Ellen Hendrickson, Clarksville, N. Y. Owner will rent.

No. 18 — Farm of 160 acres; located 6 miles from Voorheesville P. O., R. D. 2; 5 miles from railway station at New Scotland, on line of W. S. R. R.; 1 mile from school; 3 miles from churches (Reformed and Methodist); 6 miles from butter factory. State road. Fifteen miles from Albany. Surface of farm, rolling. Soil, gravel loam. Acres in meadow, 25; in natural pasture, about 50; in timber, 20, yellow pine, hemlock and beech. Acres tillable, 120. A few fruit trees. Adapted to buckwheat, oats, potatoes, hay, etc. Fences, in poor condition. Large house, poor condition. No barn. Good size wagon house and hop house. Watered by springs and well. Three lakes within four miles of this farm. This farm is near west side of Helderberg Mountains. Reason for selling, owner unable to work farm. This would

make a good sheep farm. Price, \$1,000 cash, or \$1,200, half cash. Address Alex. Flansburg, Delmar, N. Y., R. D. 1.

No. 19 — Farm of 80 acres; located $2\frac{1}{2}$ miles from Feura Bush R. R. station; creamery, schools, churches, stores, blacksmith shops, bakery, sawmill, etc.; Within $1\frac{1}{2}$ miles of daily bus line to Albany. Improved highway leads to two county roads; 11 miles from Albany. Surface of farm, rolling. Soil, part loam, part stony, but good. Acres in meadow, 25; timber, 10, hemlock, pine and hardwood. All tillable except woodland. Fruit, about 50 apple and a few pear trees. Adapted to corn, oats, rye and hay. Fences, in fair condition. House, 24x28, two stories and attic, kitchen and wood house attached, 12 rooms, good condition. Outbuildings, barn, 30x52; horse stable, 30x16, shed attached; corn house, wagon house, hog and tool house, all in fair condition. House watered by well, never dry, water near barn never fails. Large creek 28 rods from farm. This farm is $2\frac{1}{2}$ miles from Lawson's Lake, a summer resort, and 2 miles to foot of Helderberg Mountains. Reason for selling, owner unable to work farm. R. F. D. daily by house. Price, \$50 per acre. Terms, one-half down, balance on long time. Address Jas. H. Slingerland, Feura Bush, N. Y., R. F. D. 1.

No. 19 $\frac{1}{2}$ — Farm of 35 acres; located 7 miles from Delmar P. O., R. D. 1, 2 miles from railway station at New Scotland, on line of West Shore R. R.; $\frac{1}{2}$ mile from school, 3 miles from Reformed church. Highways, good. Nearest city, Albany, 10 miles distant, reached by highway. Surface of farm, level, except woodland. Soil, lime. Acres in meadow, 4; in timber 15, pine and hardwood. Acres tillable, 20. Fruit, apples, plums, pears, cherries, peaches and currants. Best adapted to grain and hay. Fences, in fair condition. House, 7 rooms, good condition. Outbuildings, barn, 21x42; henhouse, 12x24, with incubator cellar. Watered by well. Occupied by owner. Reason for selling, advanced age of owner. Price, \$1,000. Terms, cash preferred. Address Simon Relyea, Delmar, N. Y.

TOWN OF RENSSELAERVILLE
Population 1,609

No. 20 — Farm of 187 acres, 2 miles from Preston Hollow and 14 miles from

Middleburgh. Roads in the vicinity, good. Nature of soil, sand and gravelly loam. Thirty acres of meadow; 50 acres of natural pasture; 37 acres of timber; about 100 acres tillable. Fruit, orchard of 30 trees. Adapted to all kinds of crops. Altitude, 1,500 feet. Fences, stone, in good condition. House, 30x40, 2 stories, in good condition. Barn, 30x40, 2 stories. Wagon house and sheep barn. Premises watered by spring. Catskill Mountains 12 miles distant. Reasons for selling, poor health of the owner. Price, \$2,000. Terms, half cash. Name and address of owner, J. M. Watson, Preston Hollow, N. Y.

No. 21 — Farm of 135 acres, located 2 miles from Rensselaerville P. O.; 17 miles from Voorheesville station, on line of D. & H., and W. S. R. R.; ½ mile from school; 2 miles from Baptist, Presbyterian and Episcopal churches; 2 miles from butter factory. Highways, good, comparatively level. Nearest village, Rensselaerville, population 400, 2 miles distant, reached by highway. Surface, part level and part rolling. Altitude, 1,368 feet. Soil, loam. Acres in meadow, 45; natural pasture, 15; timber, 20, beech, maple, ash, hemlock; acres tillable, 55. Fruit, 70 apple trees. Best adapted to oats, corn, potatoes, buckwheat and rye. Fences, stone wall and wire, good condition. House, 20x44, kitchen and woodhouse attached, fair condition. One barn, 28x56, shed and hoghouse attached; one 22x40; one, 30x52, cow shed attached; one wagon house, with granary attached. Watered, house by well; barn by never-failing stream; fields by brooks and streams. This property is 2½ miles from Lake Myosotis, 5 miles from Crystal Lake and 20 miles from the Catskill Mountains. Occupied by owner. Reason for selling, wish to engage in other business. Price, \$1,800. Terms, part cash. This property is located ½ miles from State road; an auto-bus runs from Rensselaerville to Albany. R. D. from Berne passes door. Address Marcus S. Lasher, Berne, N. Y., R. D. 2.

No. 22 — Farm of 166 acres, located 2 miles from Medusa and 5 miles from Greenville P. O., R. D. 1; 12 miles from railway station at Cairo, on Catskill Mountain R. R., and 17 miles from West

Coxsackie or Ravena, on West Shore R. R.; 1 mile from school; 1 mile from Methodist church; 2 to 5 miles to churches of other denominations; 2 miles from butter factory. Roads, good. State roads from Greenville to Coxsackie and from Rensselaerville to Albany. Nearest city, Albany, population 100,253, distant 30 miles, reached by highway or rail from West Coxsackie. Surface, rolling. Altitude, 1,000 feet. Soil is good clay loam. 20 acres of meadow; 25 acres of natural pasture; about 35 acres of timber, hemlock, maple, beech, white ash, elm, basswood, etc.; acres tillable, 86. There is an old neglected apple orchard of about 3 acres, Newtown Pippins, also a good many younger apple trees, some of which have been grafted while others need topworking and pruning, also a few pear trees. Land is best adapted to dairying, fruit, and all general farm crops. Fences consist of stone walls and considerable new wire fencing. There is a good 2-story house, 26x36, and extensions, 16x30, with excellent cellar. Barn, 30x40, with 30-foot extension, stanchions for 14 head of cattle. Barn 26x60, with 20-foot posts, stalls and carriage room. Hay barn, 26x26. Two-story grain house, 18x26. Two poultry-houses, 8x15 and 15x18. Buildings, good condition. House has well and cistern. Barns have wells. Fields have springs, and are also watered by the Eight Mile Creek, running through northwest portion of farm. Catskill Mountains 6 or 8 miles distant, and Catskill creek 4 or 5 miles to the south. Occupied by tenant. Reason for selling, old age of owner. Price and photograph on application. Terms, cash or half cash, with balance on mortgage at 5%. Only 2 miles to one of the best creameries in the State, saw and grist-mills and barrel factory. Address, Eugene Spalding, Greenville, Greene Co., N. Y.

* No. 23 — Farm of 180 acres, located 1½ miles from Preston Hollow P. O., 13 miles from railway station at Middleburgh, on line of M. & S. Ry., 1 mile from school, 1½ miles from churches and butter factory. Highways, good. Nearest large village, Middleburgh, population about 1,000, reached by highway. Surface of farm, part level and part rolling. Altitude, 650 feet. Soil, good loam. Acres in meadow 145, in natural

* Indicates farm is in hands of agent or real estate dealer.

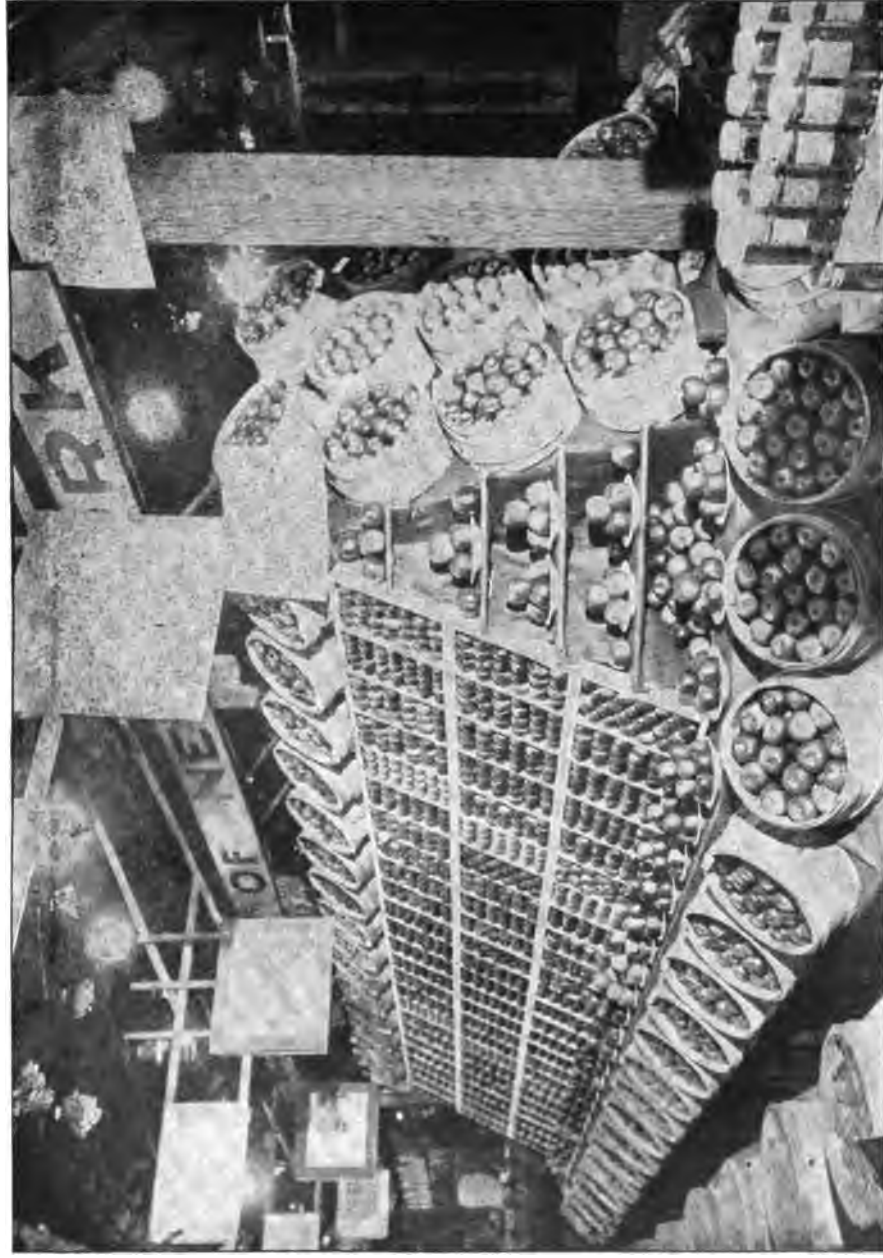


FIG. 105.—NEW YORK STATE FRUIT EXHIBIT, CHICAGO LAND SHOW, 1913.

pasture 20, in timber 15, hemlock enough for farm use. Acres tillable, 165. Fruit, 60 apple trees, also some plums and cherries. Best adapted to hay, oats, rye, buckwheat, corn and potatoes. Fences, mostly wire, good condition. House 14 rooms, good condition. Outbuildings, barn, 26x54; shed and wagon house, 64x20; hogpen; barn, 20x40; stable for horses, 16x24, good condition. Watered, house by well, barns and fields by spring. Farm is 3 miles from Crystal Lake. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500. Terms, \$2,500 down and balance on mortgage at 5%. Address L. J. King, agent, Middleburgh, N. Y.

No. 24 — Farm of 160 acres, located 2 miles from Medusa P. O., R. F. D. 1, 12 miles from railway station at Cairo, $\frac{1}{2}$ miles from school, 2 miles from butter factory and Protestant churches. Highways, good, somewhat rolling. Nearest city, Albany, 24 miles distant, population 100,000, reached by auto bus. Surface of farm, rolling. Soil, loam. Acres in meadow, 35; in natural pasture, 25; in timber, 40; good hemlock and hardwood. Acres tillable, 85. Fruit, 200 apple, 20 pear, 20 peach, 20 cherry and 20 plum trees. Best adapted to corn, oats, rye and buckwheat. Fences, stone wall and wire. House, 2 stories, 14 rooms, good condition. Outbuildings, barn, 34x46, 2 stories, with wing, 18x24; barn, 30x40, with wing, 16x30; wagon house and stable, 30x50; hog and henhouse. Watered, house by running water and well, barn by running water and spring, fields by brook and springs. This farm is 5 miles from Catskill Mountains and Crystal Lake. Occupied by owner. Reason for selling, owner cannot do the work. Price, \$3,750. Terms, cash. Address W. A. Mackey, Medusa, N. Y., R. D. No. 1, Box 42.

* No. 25 — Farm of 7 acres, located 2 miles from Huntersland P. O., 8 miles from railway station at Middleburgh, on line of M. & S. R. R., 1 mile from school, 2 miles from butter factory and Protestant churches. Highways, good. Surface of farm level. Altitude, 600 feet. Soil, gravelly loam. Acres in meadow, 7. Acres tillable, 7. Fruit, 50 apple trees and other fruit. Fences, wire and stone. House, 5 rooms. Outbuildings, barn large enough to keep 5 head of

stock and a horse together with their feed. Watered by springs. Occupied by tenant. Reason for selling, owner has other farms. Price, \$400. Terms, $\frac{1}{2}$ down, balance on mortgage at 5%. Address M. L. Tator, agent, Middleburgh, N. Y. Owner will rent with option to buy.

* No. 26 — Farm of 84 acres, located 8 miles from Middleburgh P. O., R. D. No. 2 and railway station, on line of M. & S. R. R., 1 mile from school, 2 miles from butter factory and Protestant churches. Highways, somewhat hilly. Surface of farm, part level and some hilly. Altitude, 600 feet. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 14; in timber, 20, mostly hardwood. Acres tillable, 64. Fruit, some pears and 25 apple trees. Best adapted to general farming. Fences, wire and stone, fair. House, 5 rooms, needs some repairs. Large barn with shed attached. Watered by spring and stream. This farm is 2 miles from large lake. Unoccupied. Reason for selling, owner has other farms. Price, \$600. Terms, \$400 cash, balance on mortgage at 5%. Address M. L. Tator, agent, Middleburgh, N. Y. Owner will rent with option to buy.

* No. 27 — Farm of 160 acres, located 10 miles from Middleburgh P. O., R. D. No. 2 and railway station, on line of M. & S. R. R., $\frac{3}{4}$ mile from school, 2 miles from butter factory and Protestant churches. Highways, good. This farm is 2 miles from State road where auto bus line starts to Albany. Surface of farm, part level and part rolling. Altitude, 600 feet. Soil, gravelly loam. Acres in meadow, 115; in natural pasture, 20; in timber, 25, maple, oak, hemlock and basswood. Acres tillable, 135. Fruit, 2-acres orchard and some small fruit. Best adapted to general farming. Fences, wire and stone, fair. House 25x35, with addition 12x15. Outbuildings, barn 30x40, good repair, barn 35x50, fair repair, has large shed attached, 18x30 and hog pen. Watered, house by well, barns and fields by springs. A large lake and pond only 2 and 3 miles from farm. Unoccupied. Price, \$1,800. Terms, \$500 down and \$50 a month, until \$1,050 is paid. Address M. L. Tator, agent, Middleburgh, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 28 — Farm of 85 acres, located 9 miles from Middleburgh P. O., R. D. No. 2 and railway station, on line of M. & S. R. R., $\frac{3}{4}$ mile from school, 3 miles from Protestant churches, creamery wagon passes door. Highways, somewhat hilly, but good. Surface of farm, some level and some rolling. Altitude, 66 feet. Soil, gravelly loam. Acres in meadow, 55; in natural pasture, 15; in timber, 15, mostly hardwood. Acres tillable, 70. Fruit, 40 apple trees. Best adapted to hay, corn, oats, buckwheat, etc. Fences, wire and stone, good condition. House 30x40, 8 rooms. Outbuildings, barn 24x50, with big shed attached and hog pen, all in good condition. Watered, house by well, barns and fields by springs. This farm is 2 miles from Crystal Lake. Occupied by owner. Price, \$1,250. Terms, \$550 down. Reason for selling, poor health of owner. Address M. L. Tator, agent, Middleburgh, N. Y.

* No. 29 — Farm of 150 acres, located 9 miles from Middleburgh P. O., R. D. No. 2 and railway station, on line of M. & S. R. R., $\frac{3}{4}$ mile from school, 3 miles from Methodist church, creamery wagon passes door. Highways, somewhat hilly. Surface of farm, part level and part rolling. Altitude, 600 feet. Soil, gravelly loam. Acres in meadow, 95; in natural pasture, 20; in timber, 35, hemlock, basswood, beech and maple. Acres tillable, 115. Fruit, 50 apple trees, also cherries and pears. Fences, wire and board, good. House, large, 12 rooms with two cellars, good. Outbuildings, barn 35x20, and henhouse, both in good condition. Watered, house by spring, barn by well, fields by spring. This farm is 1 mile from Crystal Lake. Occupied by owner. Reason for selling, poor health of wife of owner. Price, \$2,250. Terms, \$1,750 cash, balance on mortgage at 5%. Owner will include in price, fine team of horses, 2 cows, 2 hogs and some chickens. Address M. L. Tator, agent, Middleburgh, N. Y.

* No. 30 — Farm of 158 acres, located 8 miles from Middleburgh P. O., and railway station, on line of M. & S. R. R., $\frac{1}{2}$ mile from school, 2 miles from churches and butter factory. Highways, good. Surface of farm, level. Altitude, 1,200 feet. Soil, loam. Acres in meadow, 30; in natural pasture, 20; in

timber, 40, hemlock, beech and maple. Acres tillable, 100. Good fruit. Best adapted to hay, oats, rye, potatoes, buckwheat, etc. Fences in good condition. House, 14 rooms, good condition. Outbuildings, large barn with ell, wagon house, hogpen, etc., good condition. Watered, house by well, barn and fields by spring. Reason for selling, to close an estate. Price, \$1,800. Terms easy. Address Chas. Mann, agent, Middleburgh, N. Y.

TOWN OF WESTERLO

Population 1,307

* No. 31 — Farm of 230 acres, located 1 mile from Dormansville P. O., R. D. 1; 12 miles from railway station at Ravena, on line of W. S. R. R.; 1 mile from school and churches; 3 miles from butter factory. Highways, good. Nearest city, Albany, population about 100,000, 17 miles, reached by highway. Surface of farm, rolling. Soil, gravel, loam. Acres in meadow, 40; in natural pasture, 30; in timber, 20, second growth hemlock, beech, maple, etc. Acres tillable, 150. Fruit, 25 acres of orchard, all kinds of apples, fine fruit farm. Best adapted to corn, oats, rye, buckwheat, etc. Fences, stone, fair condition. Three houses on this place, main house, large and in good condition. Outbuildings ample for size of farm, some in good and others in poor condition. Watered, house, by well and cistern; barns, by wells; fields, by springs and creeks. This farm is 4 miles from Helderberg Mountains. Occupied by tenant. Reason for selling, to close an estate. Price, \$6,000. Terms $\frac{1}{3}$ cash. Address John D. White, agent, Altamont, N. Y.

No. 32 — Farm of 185 acres, located 2 miles from South Westerlo, R. D. 1 from Dormansville, 14 miles from railway station at Ravena, on line of W. S. railway; 1 mile from school and Protestant church, 2 miles from butter factory. Highways somewhat hilly but good. Nearest city, Albany, 25 miles distant, reached by highway or rail from Ravena. Surface of farm nearly level, southern exposure. Altitude about 1,500 feet. Soil, clay sub-soil. Acres in meadow, 100; in natural pasture, 60; in timber, 25, variety, mostly hemlock. All tillable, except woodland. Fruit, apples, pears, grapes, plums, etc. Best adapted

* Indicates farm is in hands of agent or real estate dealer.

to hay, oats, buckwheat and corn. Fences, stone and wire, fair condition. Large house in good condition. Outbuildings, good size barns, new chicken house with well fenced yards. Watered, house and barn by running water, fields by springs. Occupied by tenant. Reason for selling, owner a widow and cannot attend to farm. This is a fine dairy farm. Price, \$4,000. Terms, part cash, remainder on mortgage. Address Emily R. Wickes, South Westerlo, N. Y. Owner will rent for money rent, on shares or with option to buy.

No. 33 — Farm of 90 acres, located 1 mile from South Westerlo P. O., 14 miles from railway station at Ravena, on line of W. S. Railway, 1 mile from school, church and butter factory. Highways in good condition. Surface of farm rolling. Altitude, 800 feet. Soil, good. Acres in meadow, 65; in natural pasture, 10; in timber, 7, hard and soft. Acres tillable, 70. Fruit, peaches, pears, cherries and apples. Best adapted to hay and grain. Fences, stone wall and wire, fair condition. House, 100 ft. long, first-class condition. Outbuildings, barn, 40x60; wagon house and hog house, shed and hen house. Watered, house by well and cistern; barns by springs; fields by neverfailing stream. Unoccupied. Reason for selling, to close an estate. Price, \$2,200. Terms, cash or part down, remainder on mortgage. Address, Vernon Whitford, Westerlo, N. Y., Box 72. Owner will rent with option to buy.

No. 34 — Farm of 17 acres; located 4 miles from Greenville P. O., R. D. 1; 18 miles from railway station at Coxsackie, on line of W. S. Railway, 50 rods from school and Methodist church, 4 miles from eight churches. Highways in good condition. Nearest city and large village, Albany and Catskill, 25 miles distant. Surface of farm rolling, rather rough. Soil fairly good. Ten acres tillable. All in pasture land at present. Fruit, 11 apple trees and 3 cherry trees, also grapes. Fences, stone and wire. Two houses, good condition. Outbuildings, hen house, hog pen and barn, good condition. Watered, house and barn by well, fields by spring and creek. This farm is about 6 miles from Catskill Mountains. Occupied by tenant. This farm has been used for summer home. There is another house on place which could be occupied. Price, \$1,000. Terms,

cash or time on payment of amount sufficient to secure against loss. Address Mrs. Abbie E. Hale, Greenville, Greene county, N. Y. Owner will rent.

No. 35 — Farm of 170 acres; located 3 miles from Westerlo P. O., 18 miles from Railway station at Ravena, on line of West Shore R. R., $\frac{1}{2}$ mile from school, 3 miles from butter factory and Protestant churches. Highways, State road, good. Nearest city, Albany, 24 miles distant, reached by highway. Soil in fair condition. Acres in meadow, 25; some timber. Acres tillable, 85. Best adapted to oats, buckwheat, barley, corn and potatoes. Fences, stone and wire. House, 3 rooms and 2 bedrooms on first floor, 2 stories. Outbuildings, barn 38x50, stable for 12 cows, wagon house 24x60, stable room for 6 cows and 5 horses. Watered, house and barns by well, fields by creek. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$2,000. Terms, part down, remainder on easy payments. Address Mrs. Mary P. Taylor, 24 Prospect street, Gloversville, N. Y. Owner will rent with option to buy.

No. 36 — Farm of 150 acres; located on R. F. D. 14 miles from railway station at Ravena on line of W. S. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from butter factory and Protestant churches. Highways, good. Nearest city, Albany, 20 miles distant, reached by State road, Surface of farm, rolling and level. Altitude, 1,000 feet. Soil, loam. Acres in meadow, 124; in natural pasture, 16; in timber, 10; beech, maple, hemlock, good. Acres tillable, 124. Fruit, 200 apple, 25 pear trees, also cherries and plums. Best adapted to corn, oats, rye, buckwheat and hay. Fences, woven wire and barbed wire, good. House, 8 rooms, $1\frac{1}{2}$ stories, woodshed attached. Outbuildings, barn 24x40, barn 20x50, barn 30x60, good condition; also hen house 12x16 and hog pen 12x16; good condition. Watered, house by well, barns by well and creek, fields by springs and creeks. Occupied by tenant. Reason for selling, poor health of owner. Price, \$2,200. Terms, easy. Address Fred Winegard, Westerlo, N. Y.

No. 37 — Farm of 17 acres; located 4 miles from Greenville P. O., R. D. 1; 15 miles from railway station at Coxsackie on line of W. S. R. R.; 50 rods

from school and church; 2 miles from butter factory and milk station. Highways in good condition. This farm is 25 miles from Albany, reached by highway. Surface of farm, rolling. Soil, fairly good. Some chestnut, hickory and maple wood. Acres tillable, 11. Fruit, 11 apple and 3 cherry trees; also a few grapes. Best adapted to buckwheat,

rye, oats, corn and potatoes. Fences, stone wall. Two houses in good condition. Outbuildings, large hen house, pig pen and barn, all in good condition. watered by well and spring. Occupied by tenant. Reason for selling, ill health of owner. Price, \$1,000. Address Abbie E. Hale, Greenville, N. Y., Greene county. Owner will rent.

ALLEGANY COUNTY

Area, 1,047 square miles. Population, 41,412. Annual precipitation, 42.4 inches. Annual mean temperature, 47.5°. Number of farms, 4,937. Average value of farm lands per acre, \$37.32. County seat, Belmont.

Located in what is known as the southern tier of counties west of the center of the state.

The surface features are rough and mountainous. The county is traversed by deep valleys the sides of which are, in many places, too steep for cultivation. Some of the elevations are from 500 to 800 feet above the valleys and from 2,000 to 2,500 above tide water. The Genesee river flows northeast and a little to the west of the center of the county, and many of the tributaries of this river have cut deep valleys in different directions.

The soil of the county is known as the volusia soil. These soils are derived through feeble glaciation and consist of a gray, light brown or pale yellow silt loam. The volusia loam is the most important agricultural soil of the volusia series. The soil upon the upland is generally a heavy clay. This soil is excellently adapted for grazing, and wherever found dairying can be profitably engaged in. It is good soil for grains and general farming. Notwithstanding the roughness of the surface features, Allegany county contains many excellent farms and farm lands.

The lines of communication necessarily follow the valleys and pass in crooked lines throughout the county. There are more than fifteen hundred miles of graded and improved highways. There are many villages in the county but no large cities. The excellent school advantages are shown by the 245 district schools and Alfred University. This university, located at Alfred, offers a four-year course in agriculture.

Some of the leading crops of the county are as follows: Corn, 94,126 bushels; oats, 935,955 bushels; wheat, 28,147 bushels; barley, 39,000 bushels; buckwheat, 170,620 bushels; rye, 6,385 bushels; potatoes, 1,631,123 bushels; hay and forage, 175,279 tons. The county ranks fifth in the production of potatoes and fourth in the number of farms. There are twenty-two agricultural societies for the purpose of promoting agricultural interests and improvement of rural life.

The dairy interest is shown in the 39,573 milch cows found on the farms of the county. The other live-stock being horses, 13,542; swine, 14,062; sheep, 24,320; poultry, 187,579. The total value of all farm property is \$26,071,862, a small increase over that of 1900, namely, \$1.21 per acre.

TOWN OF ALLEN

Population 598

*No. 38 — Farm of 357 acres; located 5 miles from Angelica P. O., R. D. 1; 5 miles from railway station at Belfast, on line of B. & S. & Pa. R. R.; ½ mile from school; 1½ miles from Lutheran church; 6 miles from butter factory and milk station; 1½ miles from cheese factory. Highways somewhat hilly but good. Surface of farm, hilly and level. Soil, good. Acres in meadow, 175; in natural

pasture, 125; in timber, 57; maple, beech and elm. Acres tillable, 175. Fruit, a large apple orchard. Best adapted to hay, oats, barley, buckwheat and corn. Fences, mostly wire, good condition. A large house, good condition. A large barn in good condition. Watered, house and barn by springs, fields by creeks and springs. Occupied by tenant. Reason for selling, owner in other business. Price, \$25 per acre. Terms, fair payment down and re-

* Indicates farm is in hands of agent or real estate dealer.

mainder on easy terms. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1. Owner will rent on shares or with option to buy.

*No. 39 — Farm of 283 acres; located 6 miles from Angelica P. O., R. D. 1; 6 miles from railway station at Fillmore, on line of Penn. R. R.; 1 mile from school and German Lutheran church; $\frac{1}{4}$ mile from cheese factory; 5 miles from milk station and milk condensing plant. Highways somewhat hilly but good. Surface of farm, part hilly and part level. Soil, good if properly worked. Acres in meadow, 178; in natural pasture, 75; in timber, 30; pine, hemlock, oak, cherry and ash. Acres tillable, 150. Fruit, about 75 apple trees. Best adapted to hay, oats, barley, buckwheat, potatoes and corn. Fences, some wire and rail, fair condition. House, good size, needs some repairs. Outbuildings, large barn, nearly new, horse barn, sheds and other outbuildings in fair condition. Watered, house by springs, barn by spring and well, fields by spring and creek. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$25 per acre. Terms to suit purchaser. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1. Owner will rent.

*No. 40 — Farm of 180 acres; located $4\frac{1}{2}$ miles from Caneadea P. O., R. D. 1, and railway station, on line of W. N. Y. P. Ry.; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from German Lutheran church; 1 mile from cheese factory; 5 miles from milk station. Highways somewhat hilly but good. Nearest large village, Belfast, 5 miles distant, reached by highway. Surface of farm, mostly level. Soil, dark loam. Acres in meadow, 110; in natural pasture, 40; in timber, 30; hemlock, beech, and maple. Acres tillable, 110. Fruit, a good size apple orchard. Best adapted to hay, oats, barley, buckwheat and potatoes. Fences, mostly wire, good condition. House, 9 rooms, built 2 years. Outbuildings, horse barn 28 x 42, cow barn 26 x 50, needs a little repair. Watered, house and barns by springs, fields by springs and stream. Occupied by owner. Reason for selling, poor health of owner. Price, \$30 per acre. Terms, \$1,500 down, balance to

suit purchaser. Telephone in house. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1.

No. 41 — Farm of 333 acres; located 3 miles from Angelica P. O., R. D. 1, and railway station, on line of P. S. & N. R. R.; 1 mile from school and cheese factory; 2 miles from Lutheran church; 3 miles from Methodist, Baptist and Catholic churches; 10 miles from milk condensing plant. Highways somewhat hilly but good. Surface of farm, rolling. Soil, some gravel. Acres in meadow, 100; in natural pasture, 125; in timber, 108, hard. Acres tillable, 125. Best adapted to oats, barley, spring wheat and potatoes. Fences, wire and rail. House, 11 rooms, fair condition. Outbuildings, new barn, 30 x 46, with basement; old barn, 32 x 44. Watered by well, springs and creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$20 per acre. Terms, will give time on \$4,000. Address Henry C. Gallmann, Angelica, N. Y., R. F. D. 1.

TOWN OF AMITY

Population 2,071

No. 42 — Farm of 270 acres; located 1 mile from Belmont P. O., R. F. D. 1; 1 mile from railway station at Belmont, on line of Erie and Buffalo and Susquehanna railways; 1 mile from school, milk station, Catholic and Protestant churches; 2 miles from cheese factory. Highways in good condition. Surface of farm, level and rolling. Altitude, 1,400 feet. Soil, some clay and some loam. Acres in meadow, 110; in natural pasture, 80; in timber 80, maple, ash, oak, chestnut, beech, hemlock and basswood. Acres tillable, 150. Fruit, 25 apple trees. Best adapted to general farming. Fences, stump and wire. One house about 24 x 40, 2 stories, needs paint and shingles; 1 house, $1\frac{1}{2}$ stories, good condition. Outbuildings, cow barn, 40 x 84, cement floor, good; horse barn, 40 x 60, good; 2 silos, granary, scale house, tool house, hen house and hog house, all painted and in good or fair condition. Watered, spring water is piped to house and barns, fields by spring and creek. This farm is $\frac{1}{2}$ mile from Genesee river. Occupied by tenant. Reason for selling, ill health of owner and desire to change

* Indicates farm is in hands of agent or real estate dealer.

occupation. Price, \$11,000. Terms, \$5,000 down, balance on long time. Address Stephen Pollard, Belmont, N. Y.

TOWN OF ANGELICA

Population 1,668

No. 43 — Farm of 250 acres; located 2 miles from Angelica P. O., R. D. 1; 2 miles from railway station at Angelica, on line of P. S. & N. R. R.; 2 miles from school, Catholic church, Protestant churches, butter factory and cheese factory; 3 miles from milk station and milk condensing plant. Highways good. Surface of farm, rolling. Altitude, 1,300 feet. Soil, black and yellow loam. Acres in meadow, 200; in natural pasture, 50; in timber, 10, hemlock, maple, beech and elm. Acres tillable, 220. Fruit, apples, pears and plums, enough for home use. Adapted to all grains. Fences, wire, good. Large house, 2 tenant houses. Outbuildings, barn, 32 x 110; barn, 28 x 35; horse barn, 26 x 30; shed, 24 x 40; hen house and barn, 35 x 42. Watered, running water in house and barn; fields, by creek. The Genesee river is ¼ mile from farm. Reason for selling, owner has other interests. Price, \$15,000. Terms, reasonable. Address Wm. Herdman, Angelica, N. Y.

TOWN OF BELFAST

Population 1,773

No. 44 — Farm of 200 acres; located 2½ miles from Belfast P. O., R. F. D. 1, from Belvidere; 1½ miles from railway station at Transit Bridge, on line of Buffalo & Susquehanna R. R.; 1½ miles from school; 2½ miles from Protestant and Catholic churches; 1½ miles from one cheese factory; 2 miles from another cheese factory; 1½ miles from milk station; 1 mile from milk condensing plant. Highways, good country roads. Nearest large village, Belfast, 2½ miles distant; population about 1,000, reached by highway. About 100 acres Genesee river flats, a deep rich loam. Acres in meadow, 100; in natural pasture, 60. Acres tillable, 95. Fruit, a good apple orchard of about 4 acres. The flats are best adapted to grain, hay, alfalfa, potatoes, onions and celery; hill land suitable for buckwheat, rye, hay and pasture. Fences stump, and wire; fair condition. House, 12 rooms; good con-

dition. Outbuildings, horse barn, 36 x 36; needs new shingles; barn, 34 x 52, with leanto, 14 x 34; basement with cement floor room for 26 cows, fair condition; barn, 32 x 40, poor condition; granary, hen house and corn crib. Watered, house, by wells; barns, by running water; fields, by river and springs. Genesee river runs along east side of farm and White creek within 20 rods of west side of farm. Occupied by tenant. Reason for selling, owner has other business. Price, \$8,000. Terms, \$5,000 cash, balance on mortgage. Address Wm. Brown, Belfast, N. Y.

TOWN OF BIRDSALL

Population 568

*No. 45 — Farm of 157 acres; located 6 miles from Angelica P. O., R. D. 2; 3 miles from railway station at Birdsall, on line of Shawmut R. R.; ¼ mile from school; ¼ mile from Methodist Church; 3 miles from cheese factory and milk station. Highways somewhat hilly but good. Surface of farm, rolling. Soil, black and yellow clay loam. Acres in meadow, 85; in natural pasture, 77; wood enough for farm use. Acres tillable, about 80. Fruit, good orchard of different varieties. Best adapted to hay, oats, barley, buckwheat and corn. Fences, mostly wire, good condition. House, 12 rooms, good condition. Outbuildings, large cow barn with basement, horse barn, also barn 30 x 40 for storing grain with basement, granary, hog pen and hen house in first-class condition. Watered, house by well, barn by spring, fields by springs and creek. Occupied by tenant. Reason for selling, owner is a widow and desires to settle an estate. Price, \$25 per acre or \$30 per acre with 16 good cows. Terms, \$500 down, balance to suit purchaser. Address Wm. Gallmann, agent, Angelica N. Y., R. D. 1.

*No. 46 — Farm of 242 acres; located 3 miles from Almond P. O., R. D. 2; 3 miles from railway station at Scholes, on line of P., S. & N. R. R.; ½ mile from school and Catholic church; 4 miles from Methodist church; ½ mile from two cheese factories; 4 miles from milk station. Highways, good. Nearest city, Hornell, 12 miles distant, reached by rail. Surface of farm, rolling. Soil, black and yellow clay loam. Acres in meadow, 120; in natural pasture, 80; in timber, 40, maple, a good sugar bush.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 106.—“BIG CHEESE” EXHIBITED AT CHICAGO LAND SHOW, 1913.

Acres tillable, 100. Fruit, apples and pears. Best adapted to hay, oats, barley, buckwheat and corn. Fences, rail and wire, fair condition. House, 14 rooms, fair condition. Outbuildings, horse barn, 30x50; cow barn, 32x70, with granary and silo; barn in meadow, 30x32, needs some repairs. Watered, house, by drilled well, fields, by springs and creeks; barns, by springs. Occupied by owner. Reason for selling, farm too large for owner. Price, \$20 per acre. Terms, one-half down, balance on yearly payments of \$100 with interest. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1.

TOWN OF CANEADEA

Population 1,354

No. 47—Farm of 106 acres, $\frac{1}{8}$ mile from railway station, post office and stores. Soil, partly river bottom land and very productive. Watered by springs. Cheese factory $\frac{1}{8}$ of a mile distant. Building worth \$2,500, on main road. House, 16x36, two stories, with wing, 12x36, one story in good condition, worth \$1,500. Barns, 30x60; shed, 16x60; carriage house, in good condition. Buildings are all painted, in fine shape. Fine apple orchard. Land, all tillable; good for wheat, corn, potatoes, grass, alfalfa and beans; well watered. This farm is in the Genesee valley. Price, \$5,500. Terms, \$2,000 cash, balance on time. Address J. E. Munn, Caneadea, N. Y.

TOWN OF CENTERVILLE

Population 781

No. 48—Farm of 163 acres; located $\frac{1}{2}$ mile from Centerville P. O. and railway station, on line of B. & S. R. R., $\frac{1}{2}$ mile from school, Protestant churches, butter and cheese factory and milk station. Highways, in good condition. Surface of farm, level. Altitude, about 1,300 feet. Soil, dark loam. Acres in meadow, 100; in natural pasture, 53; in timber 10, mostly maple, some ash. Acres tillable, 140. Fruit, apples. Best adapted to hay, wheat, corn and oats. Fences, wire, fair condition. House 30x36, with kitchen and woodshed attached. Outbuildings, new barn, 36x80; barn, 26x36, for storage; hen house, 12x30; granary 14x24. Watered by spring, well and creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$7,000. Terms, part cash, balance on time. Address E. A. Gillman, Centerville, N. Y.

No. 49—Farm of 209 acres, located 1 mile from Centerville P. O., 2 miles from railway station at Centerville, on line of B. & S. R. R.; 1 mile from school, Protestant churches, butter and cheese factory; 2 miles from milk station. Highways in fair condition, part rough. Nearest city Buffalo, 53 miles distant, reached by rail. Surface of farm, rolling. Soil, gravel. Acres in meadow, 100; in natural pasture, 60; in timber 40, maple. Acres tillable, 130. Fruit, apples. Best adapted to hay, corn and oats. Fences, wire, fair condition. House, 36x40, good condition. Outbuildings, barn, 30x70; barn, 32x60, good condition. Watered by well and creek. Occupied by tenant. Reason for selling, ill health of owner. Price, \$5,000. Terms will be given on application. Address T. M. Lawrence, Centerville, N. Y.

No. 50—Farm of 213 acres; located 3 miles from Centerville P. O., R. D. 1, $2\frac{1}{2}$ miles from railway station at Hume, on line of B. & S. R. R.; $2\frac{1}{2}$ miles from school and milk station; $\frac{3}{4}$ mile from Protestant churches; 3 miles from butter and cheese factory. Highways, somewhat hilly, but good. Nearest city, Buffalo, 53 miles distant, reached by rail. Surface of farm, level. Altitude, 1,300 ft. Soil, loam. Acres in meadow, 100; in natural pasture, 80; in timber, 33, beech and maple. Acres, tillable, 160. Fruit, apples. Best adapted to hay, oats, corn and potatoes. Fences, wire, good condition. House, 30x36, with wing, good condition. Outbuildings, 3 barns, fair condition. Watered by well, spring and creek. Occupied by tenant. Reason for selling, owner has other property. Price, \$5,000. Terms, part cash, balance on easy payments. Address D. E. Sawyer, Centerville, N. Y.

TOWN OF GROVE

Population 740

No. 51—Farm of 250 acres; situated 3 miles from Swain P. O., and railway station, on line of Erie R. R. Highways, fair. Acres in meadow, 100; balance tillable; acres natural pasture, 90. 1 mile from cheese factory and school; 2 miles from church. Some second growth timber. Fruit, 2 small orchards of apples and pears. Best adapted to hay, barley, oats, potatoes and buckwheat. Occupied. Fences, wire and rail, in good condition. House, 18x28, 2 stories; wing, 18x18, nearly new. Barns, 30x102, and 24x66. This farm would make a good

stock farm. Watered, house by well, barns by cistern, fields by springs. Price, \$7,500. Terms, $\frac{1}{4}$ down; balance to suit buyer. Reasons for selling, owner blind and not able to care for the farm. Name and address of owner, Geo. W. Carter, Nunda, Livingston Co., N. Y.

TOWN OF WELLSVILLE

Population 5,663

No. 52 — Farm of $15\frac{1}{4}$ acres; located $1\frac{1}{4}$ miles from P. O. at Wellsville, R. D. 2, $1\frac{1}{2}$ miles from railway station at Wellsville, on line of Erie and Buffalo R. R.; 50 rods from school; $1\frac{1}{4}$ miles from Protestant and Catholic churches; $1\frac{1}{4}$ miles from cheese factory and milk station; 7 miles from milk condensing plant. Surface of farm, level. Altitude, 2,000 feet. Soil, loam with clay subsoil. Acres tillable, 14. Best adapted to hay, oats, potatoes and garden truck. Fences, wire, fair condition. House, 8 rooms, cellar under whole house, painted, new. Outbuildings, barn, 24x30, with stable 16x24 and shed 14x37 attached; hen house, hog house and ice house, good condition. Watered by never-failing well and creek. Occupied by owner. Reason for selling, owner wants to buy a larger farm. Price, \$2,800. Terms, prefer cash, but would take $\frac{1}{2}$ cash, balance on time at 6 per cent. Address Bert Sherwood, Wellsville, N. Y.

TOWN OF WEST ALMOND

Population 458

*No. 53 — Farm of 153 acres; located 8 miles from Almond P. O., R. D. 2, 1 mile from railway station at Bennett, on line of P., S. & N. R. R.; $\frac{1}{4}$ mile from school; 3 miles from church; $2\frac{1}{2}$ miles from cheese factory, and 1 mile from

milk station. Highways, good. Nearest large village, Angelica, 5 miles distant, population 1,000, reached by rail and highway. Soil, dark loam, good. Acres in meadow, 83; in natural pasture, 45; in timber, 25, hardwood, basswood, all young trees, 250 young maples. Acres tillable, 83. Fruit, apples, plum, cherries and pears. Best adapted to hay, grain, corn and potatoes. Fences, mostly wire, good. House, 9 rooms, good. Outbuildings, 2 barns, 30x40; wagon shed, 20x30. Watered, house and barns by drilled well, fields by springs. Occupied by owner. Reason for selling, owner desires to give up farming. Price, \$5,000. Terms, $\frac{1}{2}$ down, balance easy. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1.

*No. 54 — Farm of 218 acres; located $5\frac{1}{2}$ miles from Angelica P. O., R. D. 2, $1\frac{1}{2}$ miles from railway station at Bennett, on line of P., S. & N. R. R.; $\frac{1}{2}$ mile from school, $2\frac{1}{2}$ miles from churches and cheese factory; $1\frac{1}{2}$ miles from milk station; 10 miles from milk condensing plant. Highways, somewhat hilly, but good. Soil, clay muck. Acres in meadow, 70; in natural pasture, 60; in timber, 40, cherry, beech, maple, ash, etc. Acres, tillable, 175. Fruit, apples, cherries, plums, pears; also gooseberries and currants. Best adapted to oats, wheat, barley, buckwheat, corn and potatoes. Fences, wire, good. House, 24x26, with wing, 18x24, upright, two stories. Outbuildings, barn, 34x46, with basement; barn, 36x48, with shed. Watered, house and barns by springs, fields by springs. Occupied by owner. Reason for selling, owner unable to care for farm. Price, \$26 per acre. Terms, \$1,000 down, balance easy. Address Wm. Gallmann, agent, Angelica, N. Y., R. D. 1.

BROOME COUNTY.

Area, 609 square miles. Population, 78,809. Annual precipitation, 38.27 inches. Annual mean temperature, 48.6°. Number of farms, 4,017. Average value of farm lands per acre, \$31, an increase of 9.8 per cent. since 1900. County seat, Binghamton.

Located in what is known as the southern tier of counties bordering on the Pennsylvania line.

The surface of the county is diversified with rolling uplands, broad intervals and narrow valleys. Altitude of the hill ranges vary from 300 to 600 feet above the valley and 1,200 to 1,500 above tide water. Generally these hills are rounded and arable. Along the rivers, namely: Susquehanna, Chemung and Tioughnioga, the soil is exceptionally fertile, while the higher and hilly portions afford fine grazing and

* Indicates farm is in hands of agent or real estate dealer.

are well adapted for dairying, stock raising, and for fruit, especially apples, which are raised with great success wherever orchards are properly cared for. The value of all farm property is \$16,638,994. The total number of cattle is, dairy cows, 45,620; horses, 8,762; sheep, 9,600; poultry, 184,377. The production of principal crops was corn, 85,215 bushels; oats, 278,170 bushels; buckwheat, 154,982 bushels; potatoes, 708,114 bushels; hay and forage, 113,789 tons. Butter, wool and meat are well represented in the line of products. The production of milk was 16,069,529 gallons. Total receipts from the sale of dairy products, \$1,561,745. The lines of communication through this county afford excellent transportation facilities at low rates for ample market. There are no large tracts of timber, but most farms are well supplied with wood. Ponds, wells, springs and streams give abundant supply of excellent water. There are 207 district schools, a Pomona grange and ten subordinate granges, a cow testing association, poultry association, county agricultural societies, county fire relief association, which with the Binghamton Industrial Exposition, furnish educational advantages above the ordinary. There are 48 milk stations and factories in this county.

Transportation facilities are afforded by the Delaware, Lackawanna & Western, the Erie and the Delaware & Hudson railways, which traverse the county.

TOWN OF BINGHAMTON

Population 675

*No. 55 — Farm of 55 acres; located 8 miles from railway station at Binghamton, on line of three railways; 1 mile from school, Catholic and Protestant churches; 1½ miles from butter factory; 6 miles from cheese factory; 8 miles from milk condensing plant. Nearest city, Binghamton, 6 miles distant, reached by highway. Highways, good. Surface of farm, rolling. Altitude, 900 feet. Soil, clay loam. Acres in meadow, 20; in natural pasture, 10; in timber, 10, maple, beech, chestnut. Acres tillable, 25. Fruit, 80 bearing apple trees. Best adapted to oats, hay, buckwheat, corn, rye and potatoes. Fences, wire, pole and rail. House, 6 rooms, fair condition. Outbuildings, 2 connecting barns, one has basement, good condition; also chicken house. Watered by spring and brook. Quaker Lake, summer resort, located 1½ miles from farm, also two other small lakes. Occupied by owner. Reason for selling, owner has other business. Price, \$1,500. Terms, ½ cash, balance on time. Address Volney K. Soule, agent, Exchange Bldg., Binghamton, N. Y.

TOWN OF COLESVILLE

Population 2,415

No. 56 — Farm of 170 acres; 1 mile from P. O., R. D. 1, 3 miles from railway station at Center Village, on line of Nineveh branch of D. & H.; 1 mile from school, saw mill, grocery and railroad switch for loading lumber; 1 mile from Methodist Episcopal church; 3

miles from butter factory; 5 miles from milk station. Nature of highways, hilly, but good. Surface features, rolling and level. Soil, good. Acres in meadow, 50; natural pasture, 60; in timber, 60, all kinds, second growth. Fruit, plenty of apples and cherries. Best adapted to potatoes, oats, buckwheat and corn. Fences, wire and rail, in good condition. House, 7 rooms, in fair condition. Barn, 28x36, with good basement, in fair condition. Watered, house by spring, barn by spring, fields by springs and creek. Susquehanna River 1 mile distant. Occupied by owner. Good maple orchard of 80 trees near house. About \$1,000 worth of timber. Reason for selling, owner's health not good; also has other lands. Price, \$2,500. Terms, cash or half cash. Address D. L. Throop, Nineveh, N. Y.

No. 57 — Farm of 100 acres; ¼ mile from Belden P. O. and railway station, on line of D. & H. R. R.; 2 miles from Tunnel station; 2 miles from school and churches; 1½ miles from cheese factory; 2 miles from milk station and condensing plant. Nature of highways, hilly to Tunnel, 2 miles; level and good to Harpursville, 4 miles; nearest city, Binghamton, population 48,443, distant 16 miles by highway and 20 by railway. General features of farm, nearly level. Can see it all from dooryard. Nature and quality of soil, clay loam, new, never has been plowed very much. Acres in meadow, 40; natural pasture, 55 (white clover); timber, 6, pine and hemlock, thrifty. Acres tillable, 100.

* Indicates farm is in hands of agent or real estate dealer.

Fruit, 25 apple trees, mostly Northern Spies. Best adapted to grain, hay, potatoes, corn, etc. Fences, wire, in good condition. House, 6 rooms, and woodshed, in good condition. Barns, 30x36, with basement, new; 28x36, with linter stables, 14x36, recently repaired. Hog pen and hen house, 16x20; milk house. Watered, house by well, barns and fields by creek and spring. Susquehanna River 4 miles distant. Occupied by tenant. The buildings would cost what is asked for the farm. The farm is carrying 10 dairy cows and team. The meadows need cultivating and reseeding; land has not been plowed in a long time. Reasons for selling, old age and scarcity of help. Price, \$2,000. Terms, $\frac{1}{2}$ cash, plenty of time on balance. Address G. S. Hurd, Harpursville, N. Y., R. D. 2.

No. 58 — Farm of 247 acres; 1 mile from Harpursville P. O., R. D. 2, 2 miles from station on D. & H. R. R.; 20 rods from school; 3 miles from Presbyterian church; 1 mile from the Episcopal, Baptist and Methodist; 2 miles from Sheffield Farms, Slawson & Decker plant and Borden's shipping plant and condensing plant; 1 mile from State road. Nature of highways, slightly hilly, but good. Nearest city, Binghamton, population 48,443, 23 miles distant by rail or 16 by highway. General surface features, rolling. Meadows, large and smooth. Nature of soil, mellow and productive. Acres in meadow, 100; pasture, 90; timber, 60, thrifty chestnut, oak, beech, birch, maple, pine and hemlock; acres tillable, 150. Fruit, grapes, plums, 3 small apple orchards. Best adapted to potatoes, corn, grain, hay, general dairying and farming. Fences, rail, wire, all in good condition. New house, 30x32, and wing, 12x24, 12 rooms; also an old house ceiled with old hill pine. Barns and outbuildings, barn, 50x72, basement under all, $\frac{1}{2}$ concrete floor; horse and wagon barn, 24x50; barn, 24x36; milk and ice house, 24x30; building, 20x36; hog pens with concrete floor in basement, hen house and tool house on next floor and granary on third floor. Watered, house, by fine well; barns, running water; fields, large, living springs. Susquehanna River in sight, 1 mile distant. Beautiful view of 10 miles to the south, east and northeast. Occupied by owner. Good stone quarry on place. This farm cuts on an average of 75 tons of hay. Will winter 40 head of cattle and the teams; will summer 30 head. Posses-

sion in 60 days. Reasons for selling, owner is single man. Price, \$10,000. Terms, $\frac{1}{3}$ down. This price includes 40 head of cattle, tools and crops, 10 horses and colts. Address Ray B. Hurd, Harpursville, N. Y., R. D. 2.

No. 59 — Farm of 181 acres; located $3\frac{1}{2}$ miles from Harpursville P. O., R. D. 2, $3\frac{1}{2}$ miles from railway station at Harpursville, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from Methodist church; $3\frac{1}{2}$ miles from butter factory; $3\frac{1}{2}$ miles from condensing plant. Highway, some hills, but generally good. Nearest city, Binghamton, population 48,443, 12 miles distant, reached by rail or highway. Surface of farm, mostly level. Soil, mostly red loam. Acres in meadow, 56; in natural pasture, 60; in timber, 30, chestnut, pine, red and white oak, birch and maple. Acres tillable, 151. Fruit, 50 apple trees, 3 pear, 6 plum, 4 cherry trees, large grape-vine. Adapted to all crops grown in this climate. Fences, wire and rail, in good condition. House, 12 rooms, water in house, in fine condition. Cow and hay barn; horse and carriage house; large new milk house; hog, hen and large wood house; ice house; large granary; smoke house; Watered, house by spring and well, barns by spring; water piped to milk house; fields by springs. 6 miles from Chenango River, 3 miles from Susquehanna River, 10 miles from Afton Lake. Would sell stock and tools with the place. Farm will keep 25 cows. Have lumber sawed for 16x24 silo. Expect to put it up next spring. Occupied by owner. Reason for selling, owner wishes to go west. Price, \$4,500. Terms, cash, or \$3,000 cash, balance on time. Address Cafferty Bros., Harpursville, N. Y., R. D. 2.

No. 60 — Farm of 33 acres; located $\frac{1}{4}$ mile from Harpursville P. O.; $\frac{1}{2}$ mile from railway station at Harpursville, on line of D. & H. R. R.; $\frac{1}{8}$ mile from school; $\frac{1}{8}$ mile from Methodist, Baptist and Episcopal churches; $\frac{1}{2}$ mile from milk station. Highways, good, State road. Nearest large city, Binghamton, population 48,443, distant 20 miles, reached by railway or highway. Surface of farm, level. Soil, one-half rich loam, remainder gravel loam. Acres in meadow, 15; in natural pasture, 18. The entire farm is tillable. Fruit, pears, apples and plums. Best adapted to corn, oats, rye and potatoes. Fences.

wire, good condition. House, 10 rooms, good condition; 2 large porches, painted; 2 barns, 34x48 and 30x40, painted, in good condition; 2 hen houses. There are about 50 maple trees around buildings. Watered, house, by artesian well; barns, by well and spring; fields by river and springs. Susquehanna River forms southern boundary of farm. Nice place for city boarders, plenty of maple shade. Four-ton platform scales on the place, the only set in the village. Occupied by owner. Reason for selling, change of occupation. Price, \$4,000. Terms, \$1,500 down, balance to suit purchaser. Address James Whitlock, Harpursville, Broome Co., N. Y.

*No. 61—Farm of 75 acres, located ¼ mile to Center Village P. O. and railway station, on line of D & H. R. R. Surface of farm all river, level land. Soil, gravel loam. Adapted to general farming and early crops, 1 mile to Harpursville, also several other little villages and milk stations nearby. Good orchard. Watered, house and barn have water piped to them from never-failing spring. House, 10 rooms. Outbuildings, wagon house, barn for stock and hay with basement stables, hog house, hen house and shop. Price, \$3,200. Terms, ½ cash, balance to suit purchaser. Reason for selling, owner unable to work farm. Address Volney K. Soule, agent, Binghamton, N. Y.

TOWN OF CONKLIN
Population 850

*No. 62—Farm of 400 acres; located 3 miles from Conklin P. O. and railway station, on line of D., L. & W. R. R.; ¼ mile from church; 2 miles from Baptist church, and 3 miles from Methodist church; 4 miles from cheese factory; 3 miles from milk station. Nearest city, Binghamton, population, 48,443, 10 miles distant. Surface, rolling and hilly soil, clay loam. Acres in meadow, 100; in natural pasture, 100; wood, 100. Fruit, about 50 apple trees. Best adapted to oats, hay, buckwheat, rye, corn and potatoes. Fences, rail, fair. House, 8 rooms, good condition; 2 sets of barn buildings. Watered by well, springs and brook. This property is 3 miles from Susquehanna River, and 1 mile from Snake Creek. Occupied by tenant. Reason for selling, to close an estate. Good dairy or grazing farm. Price, \$3,500.

Terms, \$1,500 or more cash, balance to suit purchaser. Address Volney K. Soule, Binghamton, N. Y.

TOWN OF KIRKWOOD
Population 852

No. 63—Farm of 35 acres; located 7 miles from Windsor P. O., R. D. 2; 5 miles from railway station at Binghamton, on line of Erie, D. & H., and D., L. & W.; 1 mile from school and churches; 1 mile from cheese factory. Nature of highways, State road, level. Nearest city, Binghamton, population, 48,443, 5 miles distant, reached by State road. Surface, rolling, sloping to the south. Soil, loam, very productive. Acres in meadow, 20; in natural pasture, 3; in timber, 2, oak, chestnut, pine and hemlock; acres tillable, 30; 25 apple trees, 2 pear trees, 3 plum trees, 6 cherry trees, grapes, strawberries, red raspberries, black raspberries, blackberries and asparagus. Best adapted to berries, poultry and general farming. Fences, rail and wire, fair condition. House, 7 rooms, wood house attached, in good condition. Barn, 30x36, with stable attached, for 2 horses and 4 cows; 2 hen houses, for 100 hens. Watered, house and barn by well; fields by springs and stream. Susquehanna River 2 miles distant. Occupied by owner. An ideal poultry and berry farm or country home. House, 160 feet from road, among large maple and evergreen trees. Reason for selling, poor health of owner. Price, \$2,400. Terms, \$1,600 cash. Address E. C. Almy, 214 W. Kennedy street, Syracuse, N. Y. Owner will rent for cash or with option to buy.

*No. 64—Farm of 60 acres; located 1 mile from Binghamton car line and P. O.; 2 miles from railway station at Binghamton, on line of D. & H., Erie, Del. & Lackawanna railways; 1 mile from school and churches. Highways, dirt turnpike. Surface of farm, smooth, southern exposure. Altitude, about 900 ft. Soil, clay loam. Acres in meadow, 25; in natural pasture, 15. Acres tillable, 20. Fruit, 25 apple trees. Best adapted to oats, hay, potatoes, corn, rye, buckwheat and berries. Fences, wire and rail. House, 9 rooms, 1½ stories, good condition. Outbuildings, 1 large barn, gambrel roof, basement, shed attached, hog house and 2 chicken houses, good

* Indicates farm is in hands of agent or real estate dealer.

condition. Watered, house and barn by well, fields by springs. This farm is 1 mile from Susquehanna and Chenango Rivers. Occupied by owner. This farm will be sold with or without stock and tools. Price, \$2,800. Terms, $\frac{1}{2}$ cash, balance to suit purchaser. Address Volney K. Soule, agent, Exchange Bldg., Binghamton, N. Y.

No. 65—Farm of 103 acres; located just outside the city limits of Binghamton; 1 mile from school and churches of all denominations; 2 miles from milk station. Highways, slightly hilly. Altitude, about 1,400 feet. Soil, clay loam. Surface of farm, slightly hilly and rolling. Acres in meadow, 40; in natural pasture, 40; in timber, 20, oak, chestnut and hickory. Acres tillable, 80. Fruit, apples, pears and mulberries. Best adapted to potatoes, grain and fruits. Fences, wire and stone wall, fair condition. House, 12 rooms, 2 full stories, fine condition. Outbuildings, barn, 24x36 with basement; pig pen and hen house, 16x24, 2 stories, good condition. Watered by springs. Susquehanna and Chenango Rivers about 1 mile distant. Occupied by tenant. Reason for selling, owner has other business. Price, \$4,500. Terms, $\frac{1}{2}$ cash, balance to suit purchaser. Address Wellington D. Ives, 19 So. Manning Boulevard, Albany, N. Y.

TOWN OF LISLE

Population 1,429

No. 66—Farm of 243 acres; 1 mile from Lisle, on line of D., L. & W. R. R. Nature and quality of soil, gravel and hardpan; excellent meadow land. Acres in meadow, 125; acres in pasture, 120. Very little timber. House, upright and wing, of medium size and in fair condition. Barns, 1 large stock barn; 1 good-sized horse barn; granary, hog house and hay barn, 26x32. Large barn and house, recently painted. Fences, rail and wire in fair condition. Watered by running water. The above farm is said to be valuable on account of its fine meadows and pastures and favorable locality. Price \$10,000. Terms, reasonable payment on purchase and liberal terms on remainder. Address Ira D. Carley, Lisle, N. Y.

No. 67—Farm of 260 acres; located 5 miles from Marathon P. O., R. D. 4; 3 miles from railway station at Killawog, on line of D., L. & W. R. R.; $\frac{1}{2}$

mile from school; 3 miles from churches; $1\frac{1}{2}$ miles from butter factory; 3 miles from milk station. Surface of highways, rolling, but good. Nearest city, Binghamton, 22 miles distant, reached by rail. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 115; in natural pasture, 60; in timber, 50, mostly second growth and hardwood. Acres tillable, 185. Fruit, apple orchard, a few pears and plums. Best adapted to corn, potatoes, hay, oats, buckwheat, cabbage, dairying, stock or sheep raising. Fences, board, rail and wire, fair. House, 12 rooms, 2 stories, needs some repairs. Outbuildings, 2 basement barns in fair condition, one basement barn needs repairs; one old hay barn; corn crib and good silo. Watered, house, by well; barns and fields, by springs. Occupied by tenant. Reason for selling, owner has other business. Price \$20 per acre. Terms, \$1,000 down. Address J. Blanchard, Groton, Tompkins Co., N. Y.

No. 68—Farm of 47 acres; located $\frac{3}{4}$ of a mile from Center Lisle P. O.; $3\frac{3}{4}$ miles from railway station at Lisle, on line of D., L. & W. R. R.; $\frac{3}{4}$ mile from school, butter factory, cheese factory and Protestant churches; $3\frac{3}{4}$ miles from milk station; 6 miles from milk condensing plant. Highways, good. Nearest city, Binghamton, 26 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, gravel. Acres in meadow, 30; in natural pasture, 17; all tillable. Fruit, about 20 apple trees. Best adapted to oats and corn. Fences, in fair condition. House, large, good condition. Outbuildings, basement barn, 36x50, silo attached and other outbuildings, all in good condition. Watered, house, by well; barns, by running water; fields by spring. A large creek runs about 100 rods from farm. Occupied by owner. Reason for selling, owner desirous of giving up farming. Price, \$2,000. Terms, $\frac{1}{2}$ down. Address Mrs. Louise Jennings, Center Lisle, N. Y.

No. 69—Farm of 318 acres; located $2\frac{1}{2}$ miles from Center Lisle P. O.; $5\frac{1}{2}$ miles from railway station at Lisle, on line of D., L. & W. R. R.; $2\frac{1}{2}$ miles from school, Protestant churches, butter factory and cheese factory; $5\frac{1}{2}$ miles from milk station; $7\frac{1}{2}$ miles from milk condensing plant. Highways, good. Nearest city, Binghamton, 28 miles distant, reached by rail and highway. Surface



FIG. 107.—HOUSE ON FARM NO. 65, TOWN OF KIRKWOOD, BROOME COUNTY.

of farm, rolling. Soil, gravel and clay. Acres in meadow, 118; in natural pasture, 100; in timber, 100, second growth, maple, beech, hemlock and chestnut. Acres tillable, 218. Fruit, 25 pear and 25 apple trees. Best adapted to grass, oats, corn and potatoes. Fences, wire, fair. House, small, 18x24. Outbuildings, basement cow barn, 30x60, cement floor with silo attached; first-class basement horse barn, 26x36, with cement floor; basement barn, 40x36, good condition and granary in good condition. Watered, house by well; barns by creek which runs through farm. Occupied by tenant. Reason for selling, unable to obtain competent farm help. Price, \$6,000. Terms, \$2,000 down, remainder on long time. Address Homer Glegen, Center Lisle, N. Y.

TOWN OF MAINE
Population 1,363

No. 70—Farm of 120 acres; 5 miles from railway station at Union; 1¼ miles from Union Center, R. D. Soil, clay loam. Acres in meadow, 75; acres in natural pasture, 35; acres in woodland, 10. This is a good dairy or grain farm. Nicely located, 1¼ miles from creamery. Large, warm house. Several large barns and outbuildings, all good. Plenty of good water. Well fenced. Telephone. This farm is on a macadam road which extends to Binghamton, 13 miles distant, and to Maine Village, 1¼ miles distant. Price, \$5,000. Terms, \$1,000 down, balance on time. Address A. E. Whittemore, Union, N. Y., R. D. 2. Owner will rent for cash.

No. 71—Farm of 215 acres; located 6½ miles from P. O., R. D. 2 from Lestershire; 6½ miles from railway station at Union, on line of Erie, and D., L. & W. railways; 1 mile from school and church; 2½ miles from butter factory; 6½ miles from milk condensing plant. Highways, part macadamized, part dirt. Nearest city, Binghamton, 9 miles distant, population 48,443, reached by rail and highway. Surface of farm, smooth, sloping to south. Soil, black loam. Acres in meadow, 75; in natural pasture, 40; in timber, 15, chestnut, oak and basswood. Acres tillable, 180. Fruit, plums, cherries, pears and apples. Best adapted to all kinds of grain and potatoes. Fences, wire and rail, good condition. House, No. 1, 9 rooms, nearly new; house No. 2, 9 rooms, good. Outbuildings, barn, 30x40; cow barn, 30x44;

horse barn, 30x30, good condition; basement barn, 30x40, new. Watered, house by well; barns by spring; fields by spring and brook. Occupied by owner. Telephone in house. Reason for selling, poor health of owner. Price, \$7,000. Terms, ½ down, balance on bond and mortgage at 5% interest. Address Fernando W. Layman, Lestershire, N. Y., R. D. 2.

TOWN OF NANTICOKE
Population 536

No. 72—Farm of 135 acres; located 1 mile from Ketchumville P. O.; 7 miles from railway station at Newark Valley, on line of L. V. R. R.; 1 mile from school and churches; 1½ miles from butter and cheese factories; 7 miles from milk station and condensing plant. Nature of highways, fair. Nearest village, Newark Valley, population 925, 7 miles distant, reached by highway. Surface, rolling. Soil, rich and fertile. Acres in meadow, 70; in natural pasture, 35; in timber, 30, second growth hard wood; acres tillable, 70. Cherry, pear and apple trees, some small fruits. Fences, barbed wire, mostly in good condition. House, 42x24, 2 stories, with wing, somewhat run down. Barn, 36x40; granary, 12x14. Occupied by tenant. Reason for selling, poor health of owner. Price, \$2,500. If sold within 6 months will throw off \$100. Terms, agreeable to buyer. Address Charles Parsons, Newark Valley, Broome Co., N. Y. Will rent for \$150 per year.

TOWN OF SANFORD
Population 2,080

No. 73—Farm of 260 acres; located 4½ miles from Deposit P. O., and railway station, on line of Erie Ry.; 1½ miles from school, 4½ miles from Protestant and Catholic churches; 2 miles from butter factory; 4½ miles from milk station and milk condensing plant. Highways, somewhat hilly, but good. Nearest city, Binghamton, population 48,443, 40 miles distant, reached by railway. Surface of farm, rolling and hilly. Altitude, 1,500 feet. Soil, good, hard pan sub-soil. Acres in meadow, 60; in natural pasture, 90; in timber 110, maple, beech and hemlock. Acres tillable, 125. Fruit, 100 apple, 15 pear, 30 plum and 12 cherry trees. Best adapted to oats, rye, corn, buckwheat and potatoes. Fences, stone wall, wire and rail. House, 26x82, double, 20 rooms, good condition. Outbuildings, 3 barns, 30x40,

fair condition; hog house, 20x24; ice house, hen house, shop with machinery, gasoline power. Watered by never failing springs. Occupied by owner. On 2 telephone lines. Reason for selling, advanced age of owner. Price, \$5,000, stock and tools included. Terms, \$1,500 balance on easy terms, at 5% interest. Address G. C. Valentine, Deposit, N. Y.

*No. 74 — Farm of 150 acres; located 5 miles from Afton P. O., R. D. 2, and railway station, on line of D. & H. R. R.; $\frac{3}{4}$ mile from school; 3 miles from church, store and blacksmith shop; 2 miles from butter factory, on milk route of Borden's at Afton. Highways, hilly but good. Surface of farm, rolling. Altitude, 1,100 feet. Good soil. Acres in timber, 30. Fruit, 2 apple orchards, 1 young and 1 old, also some pear trees. Best adapted to potatoes, corn and oats. Fences, wire, good. House, 9 rooms, good. Outbuildings, basement barn, 31x60, fair condition; wagon house, tool house, milk house, ice house and new hen house. Watered, house by well; fields by spring. Occupied by owner. Reason for selling, owner desires to give up farming. Price, \$2,200. Terms \$900 down, balance at 5%. Address Darwin H. Craig, agent, Afton, N. Y.

*No. 75 — Farm of 185 acres; located 7 miles from Afton P. O., R. D. 2, and railway station, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school, church, store and blacksmith shop; on milk route. Highways hilly but good. Surface of farms, 25 acres of creek flat; balance rolling. Very productive soil. Acres in timber, 50, mostly young chestnut. Fruit, apples. Fences mostly wire; some rail; good condition. House, large, 13 rooms, good condition. Outbuildings, cow barn with basement, 32x56, and annex, 20x30; also new silo; horse barn, 26x40; hen house, 12x20, and granary; all outbuildings painted red. Watered by springs. Occupied by owner. Reason for selling, poor health of owner. Price, \$4,800. Terms, \$1,300 down, balance on mortgage. Address Darwin H. Craig, agent, Afton, N. Y.

TOWN OF TRIANGLE

Population 1,600

No. 76 — Farm of 126 acres; 6 miles from Whitney's Point, Chenango Forks,

R. D. One hundred and twenty acres meadow and pasture and 6 acres timber. Ten-room house in good condition. Occupied by tenant. Barn, 32x65, with basement, nearly new. Horse barn, 26x36, and other outbuildings. Watered by running water and living springs, piped to house and barn. Fences in good condition. Price, \$2,500. Terms, part in cash, balance on time. C. E. Adams, owner, Triangle, N. Y.

TOWN OF WINDSOR

Population 2,495

*No. 77 — Farm of 112 acres; located 2 miles from Windsor P. O., $1\frac{1}{2}$ miles from railway station at East Windsor, on line of D. & H. Railway; $\frac{3}{4}$ mile from school; $1\frac{1}{2}$ miles from Protestant churches; $3\frac{1}{2}$ miles from butter factory; 2 miles from cheese factory; $1\frac{1}{2}$ miles from milk station; 5 miles from milk condensing plant. Highways, macadamized and dirt. Surface of farm mostly table land. Altitude, about 850 feet. Soil, clay loam. Acres in meadow, 30; in natural pasture, 20; in timber, 10; good size for firewood and fences. Acres tillable, 40. Small apple orchard. Best adapted to oats, hay, corn, potatoes, buckwheat, etc. Fences, wire, rail and pole. House, 6 rooms, fair condition. Outbuildings, 1 good size combination corn and hog house, chicken house and granary, fair condition. Watered by springs. Occupied by owner. Reason for selling, owner has another farm and cannot attend to both. Price, \$1,400. Terms, $\frac{1}{2}$ cash, balance on easy terms. This farm will keep twelve cows. Address Volney K. Soule, agent, Binghamton, N. Y.

No. 78 — Farm of 200 acres; located 5 miles from Windsor; 1 mile from church and school; rural free delivery. One hundred and forty acres in meadow and pasture; 60 acres timber land, valued at \$2,000. House, 8 rooms, 28x30, fair condition. Outbuildings, 2 barns, 1 combination hen house and pig pen. This farm is known as the Monument Hill Farm. Price, \$5,000. Terms, easy. Reason for selling, owner has too much land. Address F. A. Port, Chenango Forks, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

CATTARAUGUS COUNTY

Area, 1,250 square miles. Population, 65,919. Annual precipitation, 47.71 inches. Annual mean temperature, 47.4°. Number of farms, 6,017. Average value of farm lands per acre, \$34.94, an increase of 32.4 per cent. since 1900. County seat, Little Valley.

Located near the southwest corner of the state with its entire southern boundary on Pennsylvania.

The surface is a hilly, rolling upland, separated by deep valleys into distinct ridges having a north and south direction. Nearly the whole country is broken, but most of the hills are arable to their summit. In some instances they are too steep for proper cultivation but afford excellent pasturage. Toward the northern part the hilly or mountainous features are considerably modified. An unusual number of streams thread the county, the Allegany river and Cattaraugus creek being the principal ones. Most of these streams afford water power and could be made of great value for the use of the farmers. Good building stone is found in large quantities. The soil is rich and productive, highly adapted to hay and forage, dairying and general farming. There are excellent railroad facilities over which the products of the farm can reach ample markets, the city of Buffalo being but a very short distance to the northwest. There are forty miles of state road and 1,576 miles of improved highway.

The principal products of the county are as follows: corn, 175,962 bushels; oats, 803,741 bushels; barley, 16,799 bushels; buckwheat, 209,281 bushels; potatoes, 879,253 bushels; hay and forage, 237,093 tons; maple sugar, 493,694 pounds. Fruit is successfully grown, the county standing number twelve in the production of apples and fifteen in the production of grapes. There were 5,556 farms reporting domestic animals as follows: milch cows, 59,779; horses, 13,888; sheep, 9,708; swine, 17,854; poultry, 235,088; dairy products amounted to 29,530,826 gallons of milk. The value of dairy products is given at \$2,608,086. The total valuation of all farm property is given at \$30,276,650, an increase of 32 per cent. since 1900. Churches of all denominations are scattered throughout the county. Thirty-two agricultural organizations assist in bettering agricultural and social conditions. The 343 district schools, together with the high schools of the villages a State Normal School at Fredonia and St. Bonaventure's College at Allegany afford excellent educational advantages.

The county is traversed by several trunk lines of railways and branches which give it transportation facilities of the highest order. The Erie, Pennsylvania, Pittsburg and Rochester and other lines pass through this county in all directions.

TOWN OF ASHFORD

Population 1,557

No. 79 — Farm of 842 acres; located $5\frac{1}{2}$ miles from Springville P. O., R. D. 4; $1\frac{1}{2}$ miles from railway station at Bertrand, on line of Buffalo and Susquehanna R. R.; $\frac{1}{2}$ mile from school and cheese factory; $5\frac{1}{2}$ miles from churches of all denominations and milk condensing plant; $1\frac{1}{2}$ miles from milk station. Highways somewhat hilly but good. Surface of farm, 300 acres level, balance excellent pasture except timber land. Altitude, 1,300 feet. Soil, black loam, clay loam and gravel. Acres in natural pasture, 240; in timber, 300, mostly second growth maple, ash, basswood and cherry. Fruit enough for use on farm. Best adapted to corn, hay, oats, wheat, buckwheat and potatoes. Fences mostly barbed wire, good. House, 10 rooms, good condition, and 3 tenant houses. Outbuildings, good octagon

barn 400 feet around with ell 42 x 100 feet, 3 large silos, granary and hen house. Watered, house, by well; barn, by windmill; fields, by springs and brook. Cattaraugus creek borders on farm. Occupied by tenant. Reason for selling, owner is a single man and does not want the care of farm. Price, \$25,000. Terms, \$6,000 cash and \$1,000 yearly at 5% interest. Sixty cows and all fodder and grain on farm included. Address John Vaughan, Springville, N. Y.

No. 80 — Farm of 111 acres; located $2\frac{1}{2}$ miles from West Valley P. O., R. D. 2; $\frac{3}{4}$ mile from railway station at Riceville, on line of Buffalo, Rochester and Pittsburg R. R.; $\frac{1}{4}$ mile from school and Congregational church; Methodist church across the road from farm; 2 miles from butter factory; cheese factory across the road from farm; $\frac{3}{4}$ mile

from milk station; $6\frac{1}{2}$ miles from milk condensing plant. Highways, level, gravel roads. Surface of farm, 50 acres level, 30 acres rolling, 31 acres hilly. Altitude, 1,200 feet. Soil, good black loam. Acres in meadow, 36; in natural pasture, 60; in timber, 15; 200 trees of sugarbush, first and second growth ash and elm. Acres tillable, 65. Fruit, apples, pears and plums. Best adapted to hay, corn, potatoes, wheat and oats. Fences mostly wire, some rail. House, good, built 7 years, hardwood finish, large concrete veranda, 10 rooms, cellar under whole house. Outbuildings, old basement cow barn, 32 x 84, with hay fork, ropes and pulleys, 20 stanchions, stone wall foundation. Watered, house, by well and cistern; barns, by brook; fields, by living springs and creek. A branch of Buttermilk creek borders farm. Unoccupied. Reason for selling, owner engaged in other business. Price, \$4,440. Terms, \$2,000 cash, \$100 payable yearly at 5% interest. Price includes 2 horses, 7 cows, 20 hens, all fodder, 2 calves, heifer and all farming tools. Address Claude Ellis, Springville, N. Y.

TOWN OF FARMERSVILLE

Population 948

*No. 81 — Farm of 219 acres; located $2\frac{1}{2}$ miles from Farmersville P. O. and railway station, on line of B. R. & P. R. R.; $\frac{1}{4}$ mile from school; 2 miles from Protestant churches; $2\frac{1}{2}$ miles from milk station; 1 mile from cheese factory. Highways somewhat hilly. Nearest large village, Franklinville, 10 miles distant, reached by rail and highway. Surface of farm rolling. Soil, gravelly loam, 3 acres muck. Acres in meadow, 75; in natural pasture, 30; in timber, 25, maple and hemlock. Acres tillable, 150. Fruit, 2 acres of apple orchard and other fruit for family use. Best adapted to hay, grain, corn and potatoes. Fence, wire and rail, fair condition. House, 10 rooms, good condition. Outbuildings, main barn, 30 x 70; tenant house, horse barn and granary. Watered, house and barns, by well and springs; fields, by springs and stream. Occupied by tenant. Reason for selling, owner cannot give farm proper attention. Price, \$8,760. Address Garfield Real Estate Agency, 1 Exchange street, Rochester, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF FREEDOM

Population 1,159

No. 82 — Farm of 240 acres, located $3\frac{1}{2}$ miles from Arcade P. O., R. D. 3; $3\frac{1}{2}$ miles from railway station at Arcade, on line of Penn. and B. & S. R. R.; $\frac{1}{4}$ mile from school; 2 miles from Methodist Episcopal church; $3\frac{1}{2}$ miles from Baptist and Congregational churches and butter factory; $2\frac{1}{2}$ miles from cheese factory; 3 miles from milk station; $3\frac{1}{2}$ miles from condensing plant. Highways, mostly level. Nearest village, Arcade, population, 1,294; $3\frac{1}{2}$ miles distant, reached by highway; Buffalo, 40 miles distant. General surface of farm, rolling. Soil, hardpan, some gravel. Acres in meadow, 100; in natural pasture, 90; in timber, 40, maple, beech, a maple sugar bush; all tillable, except the woodland. Fruit, 75 apple, 3 pear and 2 plum trees. Best adapted to dairying, hay, oats, wheat, corn, buckwheat. Fences, wire, in good condition. House, good-sized, 10 rooms, in good condition. Cow barn, 100 x 30; horse barn, 30 x 40; hog pen, 15 x 25, upper part used as hen house; all in good condition. Watered, house and barns, by well, also by drilled well 61 feet; fields, by springs. Crystal Lake, 3 miles distant. A good dairy farm; Merrill Soule Powdered Milk Co. calls for milk every day. Beautiful scenery from farm. Occupied by owner. Reasons for selling, owner a woman. Price, \$6,500. Terms on application. Address Mrs. A. H. Cramer, Arcade, N. Y., R. D. 3. This farm will be sold together with the two farms owned by G. E. Cramer, located in town of Arcade, Wyoming county, as they are adjoining, if desired.

No. 83 — Farm of about 200 acres; located $1\frac{3}{4}$ miles from Sandusky P. O. and railway station, on line of Buffalo & Susquehanna R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches; milk taken at door; 5 miles from powdered milk factory; $1\frac{3}{4}$ miles from milk station. Highways in good condition. Nearest large village, Arcade, 5 miles distant, reached by rail or highway. Surface of farm, rolling. Good soil. Acres in meadow, 100; in timber, 15, hemlock, maple, birch and beech. Fruit, 100 trees. Adapted to all crops grown in this climate. Fences, wire, fair condition. House, upright, 18x24; wing,

16 x 20, and wing, 16 x 30. Outbuildings, barn, 30 x 40, with wing, 26 x 30, and wing, 14 x 35, cement floors. Watered, house and barn have water piped from springs. Occupied by owner. The house has fine bath, hot and cold water. Cement milk house watered with pipes. Reason for selling, owner a widow. Price, \$10,000. Terms, easy. Address Mrs. Marriette J. Charles, Sandusky, N. Y.

TOWN OF NEW ALBION
Population 1,989

No. 84 — Farm of 165 acres; $\frac{1}{2}$ mile from New Albion P. O.; $3\frac{1}{2}$ miles from Cattaraugus. House, large and in good condition. Barns, in good condition. Good orchard. A large quantity of hardwood timber. Land mostly new and well adapted to hay and grain. Watered by creek and several springs. Price, \$5,000. Address A. P. Burroughs, Suffern, N. Y. Owner will rent.

No. 85 — Farm of 316 acres; located 3 miles from Cattaraugus P. O., R. D. 1, and railway station, on line of Erie R. R.; 4 miles from Little Valley, the county seat; 1 mile from school; 3 miles from churches, Methodist, Baptist and Catholic; 2 miles from butter factory; 1 mile from cheese factory; 3 miles from milk station. Highways, good. Twelve miles from Salamanca, reached by trolley from Little Valley. Surface of farm gently rolling, no steep grades. Altitude, about 1,200 feet. Soil, volusia series, light loam, hardpan subsoil. Acres in meadow, 80; in natural pasture, 50; in timber, 75, maple, beech, chestnut, basswood, ash, etc.; acres tillable, 225. About 60 apple trees. Best adapted to potatoes, oats, corn and hay. Wire fences, in good condition. Nine-room, 2-story house, newly painted inside and outside, modern. Main barn with basement stable cement floor, 90x34, in good condition; toolhouse, 24x30, adjoining; granary, 20x24; shop, 18x22; small hen house. Engine house over well adjoining shop. House watered by running water piped from spring to cellar; barns, water pumped from drilled well directly into stable by gasoline engine. Occupied by tenant. Reasons for selling, owner lives too far away to manage farm. Price, \$30 per acre. Ten thousand dollars will take the farm, dairy of 30 cows, tools. A 1-horse gasoline engine for pumping, etc.; new silo, 16x33,

was built last year; 2 concrete watering troughs, etc. Address Chas. H. Glidden, Little Falls, N. Y., or William J. Milne, Albany, N. Y. Owner will rent.

TOWN OF PERRYSBURG
Population 1,184

No. 86 — Farm of 130 acres; located $3\frac{1}{2}$ miles from Perrysburg P. O., R. D. No. 1, $1\frac{1}{4}$ miles from railway station at West Perrysburg, on line of Erie R. R., $\frac{3}{4}$ mile from school and Methodist church, 2 miles from cheese factory, $1\frac{1}{4}$ miles from milk station. Highways, good. Nearest large village, Gowanda, 5 miles distant, reached by highway. Surface of farm, rolling, slopes to north. Altitude, 800 ft. Good soil. Acres in meadow, 60; in natural pasture, 25; in timber, 5. Acres tillable, 120. Fruit, large apple orchard. Best adapted to winter wheat, corn, oats, buckwheat, potatoes, etc. Fences, rail and wire, fair condition. House, large $2\frac{1}{2}$ stories, kitchen and woodhouse attached. Outbuildings, 2 barns, 32x42; horse barn, 50x24; corn barn; granary; shed; hen house, 16x60, and hay barn. Spring water piped to house. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$60 per acre. Terms to suit purchaser. Address Warren R. Hall, Perrysburg, N. Y. Owner will rent.

No. 87 — Farm of 20 acres; located $\frac{3}{4}$ mile from Perrysburg P. O., and railway station, on line of Erie R. R., $\frac{3}{4}$ mile from school, Methodist church and milk station. Highways, good. Nearest large village, Gowanda, 5 miles distant. Surface of farm, slopes to north. Altitude, 850 ft. Good soil. Acres in meadow, 14. Acres tillable, 16. Fruit, 4 acres of grapes. No fences or buildings. Owner attends to farm. Reason for selling, too much land. Price \$75 per acre. Terms to suit purchaser. Address Warren R. Hall, Perrysburg, N. Y.

No. 88 — Farm of $23\frac{1}{2}$ acres, located 2 miles from Perrysburg P. O., and railway station, on line of Erie R. R., 2 miles from school, Methodist church, cheese factory and milk station. Highways, in fair condition. Nearest city, Dunkirk, 17 miles distant, reached by rail and highway. Surface of farm, level. Altitude, about 1,000 ft. Soil, clay. Acres in meadow, 14; in natural pasture and timber, $9\frac{1}{2}$, second growth, maple, ash and beech. Acres tillable, $13\frac{1}{2}$. Fruit,

about 15 apple trees. Best adapted to grapes. Fences, wire, need repairs. No house. Small barn. Watered by spring. Unoccupied. Reason for selling, owner unable to work farm. Price, \$30 per acre. Terms, \$200 cash, balance to suit purchaser. Address Geo. N. Lillie, Perrysburg, N. Y. Owner will rent.

TOWN OF PERSIA
Population 1,730

No. 89 — Farm of 235 acres; 2 miles from Gowanda, R. D. Good loamy soil. One hundred and fifty acres meadow and pasture and 85 acres timber. House, 20x26; wing, 16x20, with kitchen and woodshed attached. Barns and out-buildings suitable for farm. Price, \$5,800. Terms, $\frac{1}{2}$ cash and 5% interest on balance. Address E. P. Sellew, 207 Walnut Place, Philadelphia, Pa.

* No. 90 — Farm of 25 acres; located $1\frac{1}{2}$ miles from Gowanda P. O., R. D. 3; $1\frac{1}{2}$ miles from railway station at Gowanda, on line of Erie R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from seven churches; $1\frac{1}{2}$ miles from milk station. Highways, good. Surface, somewhat hilly. Soil, loam and gravel. Acres in natural pasture, 15; in timber, 10, beech, maple, chestnut, hemlock, etc.; acres tillable, 15. Best adapted to wheat, corn, oats, potatoes, etc. Fences, wire. No house or barn. Watered by spring and brook. Occupied by tenant. There is a fine water power site at one end of place. Dam could be constructed 65 feet high and 110 feet long, giving a fall of 80 to 90 feet. Reason for selling, owner has too much land. Price, \$3,000 with water rights, or \$1,500 without water rights. Terms to suit buyer. Address Norman B. Allen, Gowanda, N. Y. Owner will rent for cash for term of 1 to 5 years, or with option to buy.

* No. 91 — Farm of 50 acres; located $1\frac{1}{4}$ miles from Gowanda P. O., R. D. 3; $1\frac{1}{4}$ miles from railway station at Gowanda, on line of Erie R. R.; $1\frac{1}{4}$ miles from school and churches; $\frac{1}{4}$ mile from cheese factory. Highways, good. Nearest village, Gowanda, population 2,012. General surface features of farm, hilly. Soil, gravelly loam. Acres in meadow, 15; in timber, 35, chestnut, hemlock, beech, maple, hickory; acres tillable, 15. Fruit, 25 apple trees. Best

adapted to crops. Fences, wire, mostly good. Watered by never-failing springs and brook. Occupied by tenant. There are no buildings on this property. Reason for selling, owner has too much land. Price, \$2,000. Terms, \$500 cash, balance to suit purchaser. Address Norman B. Allen, 117 Main Street, Gowanda, N. Y.

*No. 92 — Farm of 16 acres; located $1\frac{1}{2}$ miles from Gowanda P. O., R. D. 3; $1\frac{1}{2}$ miles from Gowanda railway station, on line of Erie R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches; $\frac{1}{2}$ mile from cheese factory. Highways, good. Nearest village, Gowanda, population 2,012, distant $1\frac{1}{2}$ miles, reached by highway. General surface features, hilly. Soil, loam. All natural pasture and timber, beech, maple, hickory and chestnut; acres tillable, about 8. Well adapted to all crops. Fences, good, wire. Watered by springs and brook, never-failing. Occupied by tenant. Reasons for selling, too much land. Price, \$500. Terms, \$200 cash, balance on easy terms. There are no buildings on this property. A farm of 50 acres adjoining can be bought with the above if desired. Address Norman B. Allen, 117 Main Street, Gowanda, N. Y. Owner will rent for cash for term of 1 to 5 years or with option to buy.

TOWN OF RANDOLPH
Population 2,486

* No. 93 — Farm of 50 acres, located $4\frac{1}{2}$ miles from Randolph P. O. and railway station, $\frac{3}{4}$ mile from school, 2 miles from churches, $4\frac{1}{2}$ miles from milk condensing plant. Highways, good. Surface of farm, rolling. Good soil. Acres under cultivation, 35. Acres in timber, 15. Fruit 2 apple orchards. Best adapted to corn and oats. Fences, wire, good. House, 6 rooms fair. Large general barn. Watered, house by well; barn and fields, by spring. Occupied by owner. Reason for selling, poor health and advanced age of owner. Price, \$1,600. Terms, \$600 cash, balance on mortgage. Address Gilberts Realty Co. 9-10 Gokey Building, Jamestown, N. Y.

*No. 94 — Farm of 75 acres; located $3\frac{1}{2}$ miles from Randolph P. O. and railway station, on line of Erie R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches; $3\frac{1}{2}$ miles from cheese factory; $3\frac{1}{2}$ miles

* Indicates farm is in hands of agent or real estate dealer.

from milk condensing plant. Highways good. Surface of farm level. Good soil. Acres in meadow, 50; in natural pasture, 10; in timber, 15, chestnut. Acres tillable, 50. Fruit, all kinds of fruit raised in this section. Best adapted to corn, oats and hay. Good wire fences. House, 7 rooms, good condition. Large new barn, chicken house, hog house, milk house and corn house. Watered, house, by well; barns and fields, by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$1,300. Terms, \$800 cash, balance on mortgage. Address Gilberts Realty Co., 9-10 Gokey Bldg., Jamestown, N. Y.

TOWN OF SALAMANCA

Population 6,760

No. 95 — Farm of 136 acres; located 2 miles from West Salamanca P. O.; $3\frac{1}{2}$ miles from railway station at Salamanca; 2 miles from railway station at West Salamanca, on line of Erie, B. R. P. and Pa. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Protestant churches; 40 rods from cheese factory; 4 miles from milk station. Highways somewhat hilly but good. Surface of farm, some hilly and some level. Soil, good gravelly loam, part clay subsoil. Acres in meadow, 25; in natural pasture, about 50; remainder in timber, hard and soft wood. Fruit, about 70 apple trees. Fences board and wire, good. Best adapted to grass, hay, oats and corn. House, 10 rooms, 2 stories, good condition. Outbuildings, barn, 40x48; barn, 30x44, capable of holding 25 cows with 5 horses, silo, hog pen and hen house, 20x26, fair condition. Watered, house, by well; barns, by spring and creek; fields, by spring and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$50 per acre. Terms, $\frac{1}{2}$ down. Price includes all stock except 1 horse and buggy. Telephone in house. Trolley line about 2 miles from farm. Address J. N. Jones, Little Valley, N. Y., R. D. 2.

TOWN OF SOUTH VALLEY

Population 584

No. 96 — Farm of 144 $\frac{1}{2}$ acres, located 7 miles from Frewsburg P. O., R. D. 86; 5 miles from railway station at Onoville, on line of Penn. R. R.; $1\frac{1}{4}$ miles from school; $1\frac{1}{2}$ miles from church and butter factory; 7 miles from milk condensing plant. Highways, good. Near-

est city, Jamestown, 11 miles distant, population about 32,000, reached by highway. Surface of farm, rolling. Altitude, about 1,000 feet. Soil, good, clay loam. Acres in meadow, 42; in natural pasture, 57 $\frac{1}{2}$; in timber, 45, chestnut and hardwood. Acres tillable, 42. Fruit, 90 apple, 12 plum, 8 pear, 8 peach trees; also currants, gooseberries and strawberries. Fences, wire and rail, good condition. House, 9 rooms, good condition. Outbuildings, barn, 38x48, with cement basement; barn, 30x30; henhouse and hoghouse. Watered, house and barns by well, fields by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$30 per acre. Terms, one-half cash, balance on mortgage. Address Herbert Morrill, Frewsburg, N. Y.

No. 97 — Farm of 77 acres, located 6 miles from Frewsburg P. O. and railway station, on line of D. A. V. & P. R. R., $\frac{3}{4}$ mile from school, 1 mile from Protestant church and butter factory, 6 miles from milk plant. Highways, good. Nearest city, Jamestown, 12 miles distant, population 32,000, reached by rail and highway. Surface of farm, rolling and level. Altitude, 2,000 feet. Soil, gravel and clay. Acres in meadow, 34; in natural pasture, 23; in timber, 20, pine, oak, chestnut, etc. All tillable except woodland. Fruit, apples, plums, cherries and peaches. Best adapted to oats, potatoes, rye and millet. Fences, rail and wire, good condition. House, 22x24. Outbuildings, barn, 42x50; barn, 24x36; granary, 16x24; henhouse, 12x18; shop, 16x24, all in good condition. Watered, house by well and cistern, fields and barns by spring. Occupied by owner. Reason for selling, ill health of owner. Price, \$40 per acre. Terms easy. Address Laverne Wheeler, Frewsburg, N. Y., R. D. No. 86.

No. 98 — Farm of 125 acres, located 4 miles from Onoville P. O. and railway station, on line of Penn. R. R., 1 mile from school, 4 miles from Catholic church and butter factory, 3 miles from Protestant church, 6 miles from milk condensing plant. Highways good. Nearest city, Jamestown, 13 miles distant, reached by rail and highway. Surface of farm hilly. Soil, clay, good. Acres in meadow, 35; in natural pasture, 35; in timber, 55, mostly chestnut, second growth. Acres tillable, 40. Fruit, 30 apple trees. Best adapted to oats, pota-

toes, hay and wheat. Fences, wire, good. House, 25x16, good condition. Outbuildings, barn 30x40, henhouse 12x16, granary 10x16, all in good condition. Watered, house by well, barns and field by creek. Occupied by owner. Reason for selling, owner wishes to go into other business. Price, \$3,500. Terms easy. Address Henry Gribbin, Onoville, N. Y. Box 62.

No. 99 — Farm of 100 acres, located 3½ miles from Onoville P. O., 4 miles from railway station at Onoville, on line of Penn. R. R., 32 rods from school, 3½ miles from butter factory, Catholic and Protestant churches, 1½ miles from milk station, 6 miles from milk condensing

plant. Highways good. Nearest city, Jamestown, 12 miles distant, reached by rail and highway. Surface of farm, part rolling, part level. Altitude, about 1,600 feet. Soil, mostly gravel. Acres in meadow, 45; in natural pasture, 45; in timber, 10, maple, chestnut and beech. Acres tillable, 75. Fruit, apples, pears and plums. Best adapted to potatoes, oats and buckwheat. Fences, partly wire, partly board, fair condition. House, 12 rooms, good condition. Outbuildings, 2 barns, large; large new henhouse, 2 pigpens. Watered by pump and spring. Occupied by owner. Reason for selling, owner a widow. Price, \$2,500. Terms, cash or part cash and mortgage. Address Mrs. Catherine Laughlin, Onoville, N. Y. Owner will rent.

CAYUGA COUNTY

Area, 752 square miles. Population, 67,106. Annual precipitation, 44.71 inches. Mean temperature, 50.4°. Number of farms, 4,785. Average price of farm land per acre, \$50.40. County seat, Auburn.

Located in the central part of the state in the inland lake section. Its boundaries are long, narrow and irregular, trending north and south. The northern line is bounded by Lake Ontario, the lower western part by Lake Cayuga and touching Skaneateles Lake on the east. Lake Owaseo is located in the center of the county, not far from the city of Auburn.

The surface features of the county are undulating. The Seneca river traverses the upper half of the county with numerous small streams affording good water power and giving, with the ponds and lakes of the county, an abundant supply of excellent water.

The soil is very fertile, consisting of a fine quality of sandy or gravelly loam intermixed with clay, muck and alluvium in the northern part, and a very productive gravelly and clay loam in the southern part. Markets are easily reached over the New York Central, the Lehigh Valley and the electric lines that traverse almost every portion of the county. The highways are in excellent condition. Along the shores of Lake Cayuga are numerous quarries of water lime, quicklime, gypsum and sandstone.

There are reported on the farms of the county 103,173 domestic animals and 360,543 head of poultry. The products of the county are milk, 14,034,684 gallons from 27,199 dairy cows, the total receipts for all dairy products being \$1,251,408. The principal crops are corn, 850,149 bushels; oats, 1,210,652 bushels; barley, 300,512 bushels; buckwheat, 388,598 bushels; potatoes, 1,037,839 bushels; hay and forage, 151,721 tons. The county ranks first in barley and buckwheat, second in corn and poultry, fifth in honey and seventh in oats. Cayuga County is also an excellent fruit county. Apples, cherries, peaches, pears, plums and prunes are raised in abundance and are of the finest quality. There are scattered throughout the county a number of excellent district schools, high and graded schools, all up to the standard of excellence demanded by the state. Wells College for women is located at Aurora. The total value of farm property in this county is \$26,915,448, an increase of 19.8 per cent. over the value given in 1900.

TOWN OF IRA

Population 1,451

No. 100 — Farm of 200 acres, located 8 miles from Meridian P. O., R. D. 49; 5 miles from railway station at Cato, on line of L. V. R. R.; ½ mile from school;

3 miles from churches; 3½ miles from butter factory; 5 miles from cheese factory; 5 miles from milk station; 11 miles from milk condensing plant. Highways fairly good. Nearest city, Fulton, 12 miles distant, population about 10,

000, reached by highway. Surface of farm a little rolling. Soil, gravelly and clay loam. Acres in meadow, 25; in natural pasture, 10; in timber, 40, beech, maple, elm and ash. Acres tillable, 150. Fruit, 100 apple, 20 cherry, 10 pear and 10 plum trees. Adapted to all crops grown in this climate. Fences, barbed wire and woven wire. House, upright 18x28, south wing, 16x36, north wing, 20x24, suitable for two families. Outbuildings, barn, 100x32; cow stable, 24x60; tobacco shed, 24x60; hoghouse, cornhouse and henhouse. Watered by well and springs. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$9,000. Terms, \$2,000 down, balance on mortgage at 5% interest. Address Isaac O. Blake, 138 Van Anden Street, Auburn, N. Y. Owner will rent.

TOWN OF LEDYARD

Population 1,719

No. 101 — Farm of 35 acres, located 2 miles from Aurora P. O., R. D. 29; 1¼ miles from railway station at Levanna, on line of L. V. R. R.; 1 mile from school; 2 miles from Catholic and Protestant churches; 2 miles from skimming station and milk station. Highways in good condition. Nearest city, Auburn, 14 miles distant, population about 35,000, reached by rail and highway. Surface of farm, level. Altitude, about 600 feet. Soil, loam, clay sub-soil. Acres in timber, 6. Acres tillable, 26. Fruit, vineyard, all in bearing. This is a vineyard farm. Best adapted to grapes, also good for alfalfa. No fences. Outbuildings, packing house which could be made in 4 rooms at very little expense, good cellar, large shed for storing, etc. Watered by well and cistern. This farm is 1 mile from Cayuga Lake. Would be a good place for poultry farm. Occupied by owner. Reason for selling, owner has business in Philadelphia. Price, \$1,700. Terms, \$1,000 cash, remainder on mortgage. Address L. J. Davenport, Aurora, N. Y., R. D. 29.

No. 102 — Farm of 28 acres, located 2 miles from post-office at Aurora, R. D. 29; 1¼ miles from railway station at Levanna, on line of L. V. R. R.; 1 mile from school; 2 miles from churches, butter factory and skimming station. Highways good. Nearest city, Auburn, population, about 35,000, 14 miles distant, reached by rail and highway. Surface of farm mostly level. Altitude, about

600 feet. Soil, loam, clay sub-soil. Acres in meadow, 7; in timber, 4, hemlock, oak and basswood. Acres tillable, 22. Fruit, 70 apple trees, 8 acres of pears, all bearing. Adapted to fruit and poultry. Land is tile drained. House, 9 rooms, good condition. Outbuildings, 1 barn, 20x30, with cow sheds and wagon shed adjoining; corn crib and small chicken house. Watered by well and cistern. This farm is 1 mile from Cayuga Lake. Occupied by owner. Reason for selling, owner has other business in Philadelphia. Price, \$3,200. Terms, \$1,700 down, balance on mortgage. This farm adjoins the 32-acre farm described above and will be sold together for \$4,700. Address L. J. Davenport, Aurora, N. Y., R. D. 29.

No. 103 — Farm of 110 acres, located 2 miles from Aurora P. O., R. D. 29; 1¼ miles from railway station at Levanna, on line of L. V. R. R.; 1 mile from school; 2 miles from Protestant and Catholic churches; 2 miles from butter factory and skimming station. Highways in good condition. Nearest city, Auburn, 14 miles distant, population 35,000, reached by rail and highway. Surface of farm, level. Altitude, about 600 feet. Soil, dark loam, clay sub-soil. Acres in meadow, 35; in natural pasture, 15; in timber, 15, sugar maple, basswood, hickory and oak. Acres tillable, 80. Fruit, 20 apple trees, 30 peach trees and 8 cherry trees. Adapted to all crops grown in this climate, ideal for alfalfa. Fences, woven wire, mostly new. House, 9 rooms, good condition. Outbuildings, barn, 20x60; barn, 36x65, good condition; pighouse, tool shed, work shop, corn crib and several chicken houses. Watered, house by well and cistern, barns by well, fields by well. This farm is 1 mile from Cayuga Lake. Occupied by owner. Reason for selling, owner has other business in Philadelphia. Price, \$65 per acre. Terms, \$2,700 down, balance on mortgage. This would make a fine fruit or poultry farm. Address L. J. Davenport, Aurora, N. Y., R. D. 29.

TOWN OF OWASCO

Population 1,393

No. 104 — Farm of 288 acres, located 3¾ miles from Auburn P. O., R. D. 8; 4 miles from railway station at Auburn, on line of N. Y. C. and L. V. R. R.; 40 rods from school; 1 mile from church; 2 miles from butter factory; 4 miles

from milk station. Highways, crushed stone, good. Nearest city, Auburn, population 34,668, $3\frac{3}{4}$ miles distant, reached by highway. Surface, mostly level, some rolling. Soil, limestone loam. Acres in meadow, 70; in natural pasture, 50; in timber, 25, beech, elm, ash and soft maple; acres tillable, 250; 110 acres of splendid new seeding, 50 acres of which are in alfalfa; 120 apple trees, 6 or 8 pear trees, small fruit. Best adapted to alfalfa, corn, wheat, potatoes, cabbage, all kinds of grain, vegetables, etc. Fences, wire, fair condition. House, 30x40, just painted, in good condition. Main barn, 36x100, with basement; shed, 26x48; horse barn, 30x40; corn and hay-house, 18x20; henhouse, 16x18; all in first-class repair. Tenant house and barn. Watered, house by drilled well; barns by reservoir; fields by spring and brook whole length of farm. Two and one-half miles from Lake Owasco, in sight of house; also fine view of Auburn and surrounding country. Occupied by tenant. Reason for selling, owner has no time to look after it. Price, \$65 per acre. Terms, $\frac{1}{2}$ cash, balance to suit purchaser, interest at 5%. Address F. C. Shaw, Newark, N. Y.

TOWN OF SCIPPIO

Population 1,470

No. 105 — Farm of 110 acres, located $1\frac{1}{2}$ miles from Ensenore P. O., R. D. No. 30, and railway station, on line of L. V. R. R.; $\frac{1}{2}$ mile from school; 3 miles from Catholic and Protestant churches; $1\frac{1}{2}$ miles from milk station. Highways good. Nearest large village, Moravia, 6 miles distant, reached by rail or highway. Surface of farm, level. Soil, limestone. Acres in meadow, 50; in timber, 5, beech, maple and basswood. Acres tillable, 100. Fruit, 75 apple trees and other small fruit. Best adapted to wheat, oats, barley, corn and hay. Fences in fair condition. House, 2 stories, 12 rooms. Outbuildings, barn 34x60, barn 30x40, good condition. Watered, house by well, barn by water piped from spring. Occupied by owner. Reason for selling, scarcity of help. Price, \$55 per acre. Terms, cash or will take mortgage. Address John B. Farley, Merrifield, N. Y., R. D. No. 32.

TOWN OF SPRINGPORT

Population 1,447

*No. 106 — Farm of 250 acres, located $\frac{1}{2}$ mile from Union Springs P. O. and railway station, on line of Lehigh Val-

ley R. R.; $\frac{1}{2}$ mile from school and church; 1 mile from butter factory and milk station. Highways good. Nearest city, Auburn, $9\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm slightly rolling. Soil, clay loam. Acres tillable, 242; 8 acres in timber. Fruit, about 40 old apple trees. Best adapted to wheat, corn, barley, hay, alfalfa and fruit. Fences, nearly all new, post and woven wire. One farm house, good size and condition, good tenant house. Outbuildings, good size and condition, stalls for 30 cows. There is also another stone house with barns, all modern, cost \$40,000. Watered by springs. Occupied by owner and tenant. Reason for selling, owner wants to move elsewhere. Price, \$27,500. Terms, $\frac{1}{2}$ down, balance on mortgage at 5%. Owner will sell stock, horses and tools if desired. Address B. F. Rogers, agent, 525 Kirk Block, Syracuse, N. Y.

*No. 107 — Farm of 250 acres; located $\frac{1}{2}$ mile from Union Springs P. O. and railway station, on line of Lehigh Valley R. R.; $\frac{1}{2}$ mile from high school, churches, butter factory, milk station and milk condensing plant. Highways good, State road building to Auburn. Surface of farm slightly rolling. Altitude, 500 feet. Soil, lime loam, good alfalfa soil. Acres in meadow, 75, of which there are 30 acres of alfalfa; acres in timber, 10, honey locust. Acres tillable, 240. Fruits, several varieties, especially fine for raising peaches and small fruits. Adapted to wheat and corn. Fences, woven wire and honey locust posts, of which one mile of fencing was built last year. Three houses, one of 18 rooms, lighted by gas and electricity, steam heated; one of 8 rooms and one of 10 rooms. Outbuildings, grain and basement barn 45x100, 40 stanchions, hay barn 60x100, hog and poultry houses, carriage and horse stables, ice house and tool house, garage for 3 automobiles, some of the buildings recently painted. Watered, house by spring water, barns by running water, fields by springs and streams. Cayug Lake, 40 miles in length, is close by and in sight of the buildings. Occupied by tenant. Reason for selling, owner engaged in other business. Price and terms will be given upon application. Owner will sell stock and tools if desired. Address Chas. S. Hutchinson, agent, 107 West Kennedy Street, Syracuse, N. Y.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 108.— HOUSE ON FARM No. 107, TOWN OF SPRINGPORT, CAYUGA COUNTY.

TOWN OF SUMMER HILL
Population 613

No. 108—Farm of 187 acres; located 6 miles from Locke P. O., R. D. No. 20; 5 miles from railway station at Groton, on line of Lehigh Valley R. R.; ½ mile from school, Protestant church and butter factory; 5 miles from milk station and milk condensing plant. Highways hilly. Nearest city, 10 miles distant, reached by highway. Surface of farm nearly level, a little rolling. Altitude, 1,100 feet. Soil, dark loam. Acres in meadow, 75; in timber, 40, beech, maple and basswood. Acres tillable, 145. Fruit, 100 apple, 12 pear and 10 cherry trees. Best adapted to corn, potatoes, buckwheat and hay. Fences, barbed wire. House, 12 rooms. Outbuildings, barn 56x24, fair condition; barn 70x30, fair condition; henhouse 18x60. Watered, house and barn by well, fields by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,000. Terms, \$1,000 down and long time for balance. Address Luther Carpenter, Locke, N. Y., R. D. No. 20. Owner will rent.

No. 109—Farm of 127 acres; located 7 miles from Locke P. O., R. D. No. 20; 6 miles from railway station at Homer, and line of D., L. and W. R. R.; ½ mile from school; 1 mile from Baptist church; 2 miles from butter factory; 6 miles from milk station; 8 miles from milk condensing plant. Highways somewhat hilly. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, dark loam, clay sub-soil. Acres in meadow, 40; in natural pasture, 30; in timber 17, beech, maple and basswood. Acres tillable, 70. Fruit, apples, pears and grapes. Best adapted to corn, potatoes, buckwheat and hay. Fences, barbed wire, poor condition. House, 10 rooms, nearly new. Outbuildings, dairy barn 30x50 and horse barn 30x40, good condition. Watered, house and barns by well, fields by brook. Occupied by tenant. Reason for selling, owner has another farm. Price, \$6,000. Terms, \$1,000 down, balance on long time. Address Mrs. Luther Carpenter, Locke, N. Y., R. D. No. 20. Owner will rent.

No. 110—Farm of 15 acres; located 8 miles from Cortland P. O., R. D. No. 7; 7 miles from railway station at Homer, on line of D., L. and W. R. R.; ½ mile from school; 1 mile from Baptist

church; 2 miles from butter factory; 7 miles from milk station; 9 miles from milk condensing plant. Highways hilly. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, black loam and muck. Acres in meadow, 4; in timber, 11, beech and maple. Acres tillable, 4. Fruit, 1 pear and 20 apple trees. Best adapted to corn and potatoes. Fences, wire. House, 8 rooms, good condition. Small barn for two horses and cow. Watered, house and barn by well, fields by lake. Frontage of 30 rods on Lake Como. Occupied by owner. Reason for selling, owner a carpenter and wishes to move to city. Price, \$1,500. Terms, ½ down. Address S. S. Schoonover, Cortland, N. Y.

TOWN OF THROOP
Population 960

No. 111—Farm of 100 acres, located 2½ miles from Auburn P. O.; 2 miles from railway station at Auburn, on line of N. Y. C. and L. V. R. R.; ¾ mile from school; ¾ mile from Baptist and Presbyterian churches; 2½ miles from milk station. Highways, good. Nearest city, Auburn, population 34,668, 2½ miles distant, reached by highway, 1 mile from city line. Surface of farm, part level, part rolling. Soil, good loam, little clay. Acres in meadow, 20; in natural pasture, 30; in timber, 5, beech and maple; acres tillable, 90. Fruit, 40 apple trees, 15 pear trees, a few plum and crab apple trees. Adapted to all kinds of hay and grain. Fences, barbed wire, fair. House 8 rooms. Barns, 34x24 and 34x46. Watered, house and barn, by well; fields, by spring. Four miles from Owasco Lake. Good sand bank on farm. Good dairy farm or a good farm for garden truck. Occupied by tenant, leased for 1 year, with privilege of longer if not sold. Reason for selling, owner lives too far away to handle to advantage. Price, \$6,000. Terms, \$1,000 cash. Address Lillian R. Arnold, Seneca Falls, N. Y.

TOWN OF VENICE
Population 1,343

No. 112—Farm of 105 acres, located 1 mile from Venice Center P. O. and railway station, on line of N. Y. A. & L. R. R.; 4 miles from butter factory; 1 mile from milk condensing plant. Highways, good. Nearest city, Auburn, 15½ miles distant, reached by rail and highway. Surface, partly level and partly rolling. Altitude, 1,100 feet above sea

level. Good soil. Acres in meadow, 20; in natural pasture, 30; in timber, 10, beech, maple and basswood; acres tillable, 75. Fruit, apples, peaches, plums and pears. Adapted to all kinds of crops grown in this climate. Fences, wire, board and rail, not very good. House, 39x36, good condition. Outbuildings; barn, 30x90; horse barn, 30x36; cow barn; 2 hen houses; hoghouse. Watered by well and spring. This property is 10 miles from Cayuga Lake; Owasco Lake, 5 miles distant. Reason for selling, advanced age and poor health of owner. Price, \$5,500. Terms, \$2,000 mortgage can remain. Would sell 80 acres with the 105 described above. There are two sets of buildings, two orchards and small fruits and eighteen acres of timber on this property. Will sell both farms for \$9,500. Address Amos Emory Hutchinson, Venice Center, N. Y.

*No. 113 — Farm of 200 acres, located 6 miles from Moravia P. O., R. D. 19; 2½ miles from railway station at Venice Center, on line of Auburn & Ithaca

R. R.; ½ mile from school; 2½ miles from Baptist and Methodist churches; 4 miles from Catholic church; 2½ miles from butter factory; 2½ miles from milk station. Highways, good. Nearest city, Auburn, population 34,668, 16 miles distant, reached by rail or highway. Surface of farm, mostly level, part slightly rolling. Altitude, 1,200 feet. Soil, good. Acres in meadow, 60; in natural pasture, 25; in timber, 20; acres tillable, 155. Small orchard, mostly apples. Best adapted to oats, barley, wheat, buckwheat, corn, potatoes. Fences, fair condition. Good-sized house, in good condition. Hay barn, 80x40; grain barn, 70x34; sheds, horse barn, hogpen, chicken-house, all in fair condition. Watered, house, by 2 wells; barns, by well; fields, by brook 5 miles from Owasco Lake, 10 miles from Cayuga Lake. Occupied by tenant; lease expires April 1, 1914. A good, productive farm. Reason for selling, owner lives at a distance from farm and cannot care for it. Price, \$10,000. Terms to suit purchaser. Address Henry M. Jewett, agent, Moravia, N. Y. Owner will rent.

CHAUTAUQUA COUNTY

Area, 1,099 square miles. Population, 105,126. Annual precipitation, 39.09 inches. Annual mean temperature, 50.3°. Number of farms, 7,500. Average price of farm land per acre, \$58.38. County seat, Mayville.

Located in the southeast corner of the state bordering on the waters of Lake Erie.

The surface features are mostly hilly and rolling upland. A bluff of 20 or 30 feet elevation extends along the lake front, and from its summit the land spreads out in an undulating region, gradually rising for a distance of three or four miles. This comparatively level tract is bordered by the declivities of a hilly upland which covers the central and southern portions of the county. These uplands are broken by deep valleys. The county is well watered, there being several small lakes in the highlands. The soil of the uplands is principally clay, mixed with disintegrate shale, generally known as flat gravel. In the valleys is found a fine quality of sandy and gravelly loam mixed with alluvium. Along the lake shore is a strip of very productive clay loam. The uplands of the county are all arable to their summits. This is the greatest grape producing county in the United States. The last census shows that 3,582 carloads of grapes, 1,225,000 gallons of grape juice and 750,000,000 gallons of wine were produced on the 35,000 acres of vineyard land. The other leading products are as follows: corn, 500,850 bushels; oats, 846,513 bushels; buckwheat, 257,341 bushels; barley, 36,392 bushels; wheat, 19,379 bushels; potatoes, 778,277 bushels; hay and forage, 228,907 tons. In respect to livestock the number of farms reporting domestic animals is 6,963, classified as follows: dairy cows, 49,648; horses, 17,363; swine, 20,757; sheep, 14,294; poultry, 325,621. There were produced 23,384,208 gallons of milk. The total receipts for sale of dairy products was \$2,034,455. Valuation of all farm property is given as \$43,738,499, an increase of 41.8 per cent. since 1900.

The county is thoroughly equipped with lines of transportation. There are 277 district schools in the county besides the graded and high schools in the villages.

* Indicates farm is in hands of agent or real estate dealer.

These are all of the same high standing demanded by the state. Churches of all denominations are scattered throughout the county. There are forty agricultural organizations, thirty-six miles of state road and 1,896 miles of improved highway. The county ranks first in grapes, second in currants, and fourth in poultry.

TOWN OF ARKWRIGHT

Population 843

No. 114 — Farm of 356 acres; located 6 miles from Cassadaga P. O., R. D. 31; 6 miles from railway station at Laona, on line of D. A. V. & P. R. R.; school across street; 2 miles from churches; 6 miles from milk station; butter factory across street. Highways, somewhat hilly but good. Nearest large village, Fredonia, population 5,285, 8 miles distant, reached by highway. Surface, hilly. Altitude, about 1,500 feet. Soil volusia loam. Acres in meadow, 100; in natural pasture, 80; in timber, 120, hemlock, maple and beech; acres tillable, 120. Fruit, 500 apple trees. Best adapted to hay, oats, corn and potatoes. Fences, barbed wire, good condition. New house, 30x40, running water. New barn, 40x60; old barn, 35x75; hogpen, 20x30; henhouse, 15x15, nearly new. Spring piped to trough, then to barn, over a dozen springs. Farm is 9 miles from Lake Erie. Occupied by tenant. Reason for selling, owner cannot attend to farm. Price, \$10,000. Terms, one-third cash. Address Rosie E. Pierce, care C. D. Sessions, Fredonia, N. Y.

TOWN OF BUSTI

Population 2,136

No. 115 — Farm of 159 acres; located about 6 miles from Jamestown P. O., R. D. 79, and railway station, line of Erie R. R. and J. C. & L. E. R. R., $\frac{1}{2}$ mile from school, $1\frac{1}{2}$ miles from churches, 3 miles from butter factory, milk wagon passes farm, 8 miles from milk condensing plant. Highways somewhat hilly. Surface of farm level and rolling. Altitude, 1,500 ft. Soil, clay loam. Acres in meadow, 40; in natural pasture, 50; in timber, 70, beech, maple and hemlock. Acres tillable, 40. Fruit, an old orchard of 50 apple trees, young pear, cherry and plum trees not yet bearing. Best adapted to hay, oats, buckwheat and potatoes. Fences, wire, fair condition. An old farm house with 6 rooms downstairs and 4 upstairs, woodshed attached. Outbuildings, three barns, one 26x30 and two 30x40. Watered, house by first-class drilled well, fields, by spring and stream. Occupied

by owner. Reason for selling, owners cannot attend to farm. Price \$35 per acre. Terms, \$1,500 cash, payments on balance must be completed in 10 years. A reduction in price would be made for a cash sale. Address Edwin Tuttle or Eunice E. Tuttle, Jamestown, N. Y., R. D. 79.

No. 116 — Farm of 100 acres, located 6 miles from Jamestown P. O., R. D. 79, and railway station, on line of Erie, J. C. & L. E. and D. A. V. & P. Railroads, $1\frac{1}{2}$ miles from churches; $\frac{1}{2}$ mile from school; 3 miles from butter factory; milk wagon passes door; 8 miles from milk condensing plant. Highways somewhat hilly. Surface of farm level and slightly rolling. Altitude, about 1,500 ft. Soil, clay loam. Acres in meadow, 40; in natural pasture, 50; in timber, 10. Acres tillable, 40. Fruit, an old apple orchard of about 25 trees. Best adapted to hay, oats, buckwheat, etc. Fences, wire, fair. House, 2 stories, 32x28, needs some repairs. Outbuildings, henhouse, barn 30x40, fair condition. Watered by well, springs and stream. Reason for selling, owners cannot attend to farm. Price, \$35 per acre. Terms, \$1,000 cash, payments on balance must be completed in 10 years. A liberal discount will be made for cash. Address Edwin Tuttle or Eunice Tuttle, Jamestown, N. Y., R. D. 79.

TOWN OF CARROLL

Population 1,564

No. 117 — Farm of 93 acres; $\frac{3}{4}$ mile north from Frewsburg P. O., on line of D. A. V. & P. R. R.; 1 mile from station; $\frac{1}{2}$ mile from school; $\frac{5}{8}$ mile from Methodist church and 4 other churches; R. D. 84. Highways, good, level roads. $5\frac{1}{2}$ miles from Jamestown, population 31,297, reached by rail and highway. Occupied by owner. Surface, level. Soil, mostly gravelly loam, little clay. Acres in meadow, 61; in natural pasture, 30. Some wood in pasture; have sold a quantity of hemlock and pine timber, but have reserved enough for use of farm. About 40 apple trees. Best adapted to oats, corn, wheat, barley, buckwheat, potatoes, etc. Fences, mostly barbed wire, good condition, some woven wire. House, upright, 16x

26; S. L., 18x26; E. L., 16x20; 10 rooms. Horse barn, 30x40; cow barn, 40x44; in good condition. House watered by well; barns, by well; fields, by two brooks and a spring. Conewango Creek forms the northwest boundary of farm. Frewsburg is a thriving little village in which are 4 sawmills and 1 canning factory. The Merrill Soule Co. is erecting a milk powder factory at a cost of \$75,000. The Jamestown & Warren trolley runs through the village. The Delaware & Eastern R. R. will soon run within 3 miles of the farm to Gilboa, a town of 250 inhabitants, where there will be a depot. Farm is beautifully located. All meadows are mowed with machinery and raked with horse rake. Telephone in house. Price, \$75 per acre. Terms, $\frac{2}{3}$ or more cash, balance on bond or mortgage. Reasons for selling, owner a widow and in poor health. Name and address of owner, Mrs. R. C. Dingley, Frewsburg, N. Y.

TOWN OF CHARLOTTE

Population 1,258

No. 118 — Farm of 100 acres; located $4\frac{1}{2}$ miles from Sinclairville P. O., R. D. 40; 5 miles from railway station at Sinclairville, on line of D. A. V. & P. R. R.; $1\frac{1}{4}$ miles from school; 2 miles from Methodist church; $\frac{1}{2}$ mile from butter factory; 5 miles from milk station. Highways, good. Nearest city, Jamestown, population 31,297, 16 miles distant, reached by rail and highway. Surface, level. Soil, yellow loam, dark loam and gravel. Acres in meadow, 40; in natural pasture, 40; in timber, 20, maple; acres tillable, 80. Fruit, apples, pears, plums, cherries, currants, strawberries and raspberries. Best adapted to grass, oats, barley, corn, potatoes, cabbage, buckwheat and millet. Fences, woven wire. Good house, nearly new, 15 rooms. Outbuildings, new; cow barn, 42x60; horse barn, 30x40; henhouse, 16x50; storehouse, 20x28; sugar house; 3 sheepbarns, one, 12x38, one, 12x45, and one, 18x15. Watered by well and springs. This property is 14 miles from Chautauqua Lake. Occupied by owner. Reason for selling, advanced age of the owner. Price, \$6,000. Terms, \$4,000 cash, balance on mortgage. Address S. B. Irwin, Sinclairville, N. Y. Owner will rent.

*No. 119 — Farm of 100 acres; located 4 miles from Cassadaga P. O., R. D. 32 and railway station, on line of D. A. V. & P. R. R.; 20 rods from school; 2 miles from church; $1\frac{1}{2}$ miles from butter factory and cheese factory; 4 miles from milk station. Highways, good. Surface of farm, slightly rolling. Altitude, about 1,900 feet. Soil, gravel loam. Acres in meadow, 25; in natural pasture, 50. Sugar bush. Acres tillable, 25. Fruit, 50 apple trees. Best adapted to oats, corn, potatoes and buckwheat. Good fences. House, 11 rooms, good condition. Two barns, good condition. Watered, house and barns by well, fields by brooks and springs. Occupied by owner. Reason for selling, owner has other business. Price, \$4,000. Terms, \$1,000 down, balance on reasonable terms. Address Eckstrom and Frank, agents, Jamestown, N. Y.

TOWN OF CHAUTAUQUA.

Population 3,515

No. 120 — Farm of 47 acres; located $\frac{1}{2}$ mile from Mayville P. O.; 1 mile from railway station at Mayville, on line of Penn. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from Presbyterian, Lutheran and Methodist churches; about 3 miles from butter factory; $\frac{1}{2}$ mile from milk station. Highways, good. Nearest large village, Mayville, population, 1,122, reached by highway or trolley. Surface, rolling; easy grade; can all be worked. Soil, good. Acres in meadow, over 20; in natural pasture, about 20; in timber, about 7, beech, maple. Acres tillable, 30. Fruit, 50 apple trees, 150 grapevines (a good farm for grapes). Best adapted to hay and grain. Fences, wire and rail. House, $1\frac{1}{2}$ -story, 1 story wing; 12 rooms. Six buildings on farm: horse barn, 22x30, in fair condition; cow barn, large enough for 8 head of cattle; hen house, $1\frac{1}{2}$ stories; hall, 24x40, 2 stories; building, $1\frac{1}{2}$ stories. House watered by pump in kitchen; barns from house. One mile from Chautauqua Lake. Highways on two sides of farm, trolley car on highway in front of house. Can have natural gas for fuel. Occupied by tenant. Reason for selling, owner has other business. Price, \$4,000. Terms, whole or half cash, balance on mortgage. Name and address

* Indicates farm is in hands of agent or real estate dealer.

of owner, M. F. Jacobsen, 501 East 6th Street, Jamestown, N. Y.

No. 121 — Farm of 133 acres; 2 miles from Hartfield P. O., R. D. 44, and from railway station at Hartfield on line of Chautauqua Lake R. R.; $\frac{1}{2}$ mile from school; 2 miles from Union, Christian and Episcopal churches; 1 mile from cheese factory. Highways, good, but hilly. Nearest village, Mayville, population, 1,122, distant 4 miles, reached by highways. Surface, pastures hilly, meadows level and rolling. Soil, black loam. Acres in meadow, 45; in natural pasture, about 55; in timber, 30 to 40, beech, maple, ash, basswood and cherry. Acres tillable, about 100. Fruit, a large number of apple trees, choice varieties, a few fine pear trees, few peaches and other fruit. Best adapted to grass, corn, oats, etc. Fences, a few rail, the rest wire, in fair condition. House, upright, 32x25; wing, 18x50. Outbuildings: barn, 40x50; stable, 40x50; horse barn, 25x30; corn barn, 20x20; all in good condition. Watered, house by well; barns and fields by spring and streams. Chautauqua Lake, 2 miles away. This farm is well watered, lying in a sheltered location with excellent timber and buildings in good condition. Occupied by owner. Reason for selling, this property is owned and occupied by a widow and her daughter, who cannot conduct farm. Price, \$35 per acre. Terms, one-half cash, balance on mortgage. Address M. L. Mallory, Hartfield, N. Y.

No. 122 — Farm of 140 acres, located 2 miles from Sherman P. O.; $1\frac{1}{2}$ miles from railway station at Sherman, on line of Penn. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Presbyterian, Baptist, Methodist and Universalist churches; $1\frac{1}{2}$ miles from butter factory and powdered milk factory; 2 miles from condensing plant. Highways, part hilly, but good. Nearest city, Jamestown, population, 31,297, 20 miles distant, reached by rail or highway. Surface, rolling. Soil, good. Acres in meadow, 45; in natural pasture, 85; in timber, 8, hemlock, cherry, ash, beech and maple; acres tillable, 100. Fruit, 40 apple and 3 pear trees. Best adapted to grass, oats, corn, buckwheat. Fences, wire and rail, in good condition. House, upright, 24x32, $1\frac{1}{2}$ -story wing, 18x32, in

fair condition. Cow barn, 50x70, remodeled 2 years ago, basement with cement floor, swing stanchions for 24 head of stock, water basins; additions on cow barn, 15x60 and 22x40; horse barn, 24x40, leanto, 12x40, in fair condition. House, watered by drilled well; barns, by drilled well pumped by windmill; fields, by stream and springs. Eight miles from Chautauqua Lake. A good dairy farm; keeps 20 cows and a team. Joining property a tract of timber of 33 acres which owner would sell. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,500. Terms, \$2,000 cash, balance on bond and mortgage at 5 per cent. Address C. M. Myrick, Sherman, N. Y.

*No. 123 — Farm of 100 acres, located 3 miles from Mayville P. O. and railway station, on line of Penn. R. R., 3 miles from school and churches, 3 miles from milk condensing plant. Highways, good. Surface of farm, rolling. Soil, loam. Acres in meadow, 25; in timber, 20, second growth, hard wood. Acres tillable, 75. Adapted to general farming. House, 12 rooms. Outbuildings, cow barn, 36x60; horse barn, 30x36; granary, 26x30; hog house, 12x20; silo, 12x24. Watered by well and running water. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,000. Terms, half cash. Address E. C. Delaplain, agent, Westfield, N. Y.

TOWN OF ELLICOTT Population 4,371

No. 124 — Farm of 75 acres, $2\frac{1}{2}$ miles from Jamestown P. O., on line of Erie R. R.; $2\frac{1}{2}$ miles from station; $\frac{1}{4}$ mile (all denominations); R. D. 76, Jamestown. Good roads. Nearest city, Jamestown, population, about 32,000, reached by highway and street car in southerly direction. Unoccupied. Surface, rolling slightly and level. Soil, loam, slightly sandy. Acres in meadow, 50; in natural pasture, 10; in timber, 5; acres tillable, 65. Fruit, 6 apple trees. Best adapted to corn, wheat, oats and hay. Fences, 50 acres surrounded by wire fence. House, old, 2 stories, in poor condition. Small old barn in poor condition. House watered by good spring; fields, by good springs, never dry; $2\frac{1}{2}$ miles from Chautauqua Lake; $\frac{1}{2}$ mile from Cassadaga

* Indicates farm is in hands of agent or real estate dealer.

Creek. Many farmers in this neighborhood have paid for farms by raising strawberries and other garden truck and selling in the city. Reason for selling, owner is not a farmer; also has another farm in same place. Price, \$50 to \$60 an acre. Terms to suit purchaser: prefer small payment. Name and address of owner, R. N. Blanchard, M. D., Jamestown, N. Y.

TOWN OF ELLINGTON

Population 1,235

No. 125 — Farm of 129 acres, 2 miles from Ellington P. O.; $2\frac{1}{2}$ miles from Kennedy station and R. D.; 120 acres meadow and pasture; 9 acres timber. A good dairy farm and said to be very cheap at price asked. Watered by springs and artesian well. Fences, in good condition. House, 18x36, wing, 18x20, in good condition. Barns, 26x46 and 30x40, basement stable and cement floor, in good condition. Good silo, 12 ft. in diameter and 30 ft. high. Price, \$35 per acre. Terms easy. Address G. G. Gilbert, Ellington, N. Y. Owner will rent on shares or for cash.

TOWN OF FRENCH CREEK

Population 882

No. 126 — Farm of 209 acres; located 7 miles from Clymer P. O., R. D. 58; $8\frac{1}{2}$ miles from railway station at Clymer, on line of Penn. R. R.; $\frac{3}{4}$ mile from school; $3\frac{1}{2}$ miles from Methodist and Presbyterian churches; $3\frac{1}{2}$ miles from milk station. Highways, good. Soil, gravel and loam. Acres in meadow, 40; in natural pasture, 84; timber, 70, hemlock, elm, maple, basswood and beech; acres tillable, all except woodland. Fruit, apples and pears. Best adapted to grass, corn, oats, barley, buckwheat and potatoes. Fences, board, rail and wire. House, 28x32, with ell, 16x24, good condition. Outbuildings: barn, 50x59, basement, with stable for 36 head cattle, fair condition; horse barn, 30x40; hog house and hen house. Watered by well, brook and spring. French Creek on north of farm. Occupied by owner and tenant. Reason for selling, advanced age of owner. Price, \$7,000. Terms easy. Address C. W. Kennedy, Clymer, N. Y., R. D. 58. Owner will rent.

TOWN OF HARMONY

Population 2,847

No. 127 — Farm of $153\frac{1}{2}$ acres; located 4 miles from Clymer P. O., R. D.

61; 4 miles from railway station at Panama, on line of Penn. R. R., also 5 miles from Bear Lake on Erie; 1 mile from school; $1\frac{1}{2}$ miles from Free Baptist; $3\frac{1}{2}$ miles from Methodist and Reg. Baptist churches; $3\frac{1}{2}$ miles from butter factory; $3\frac{1}{2}$ miles from cheese factory; 4 miles from milk station; 10 miles from condensing plant. Highways, good. Nearest village, Panama, population, 337, $3\frac{1}{2}$ miles distant, reached by highway. Surface features of farm, part rolling, $\frac{2}{3}$ level. Soil, loam and gravel. Acres in meadow, 30; in natural pasture, 70; in timber, 30, beech, maple, ash, hemlock and basswood; acres tillable, 70. Fruit 125 apple trees. Best adapted to grass. Fences, rail and wire, in good condition. House, 32x28, in good condition. Barn, 62x47; barn, 60x40; hog pen, 16x24; hen house, 16x12; milk house, 12x18; shop, 16x24; wood house, 16x24. House watered by spring; barns, by creek, and fields, by creek; 12 miles from Lake Chautauqua. Occupied by tenant. Reason for selling, owner too old to work the farm. Price, \$3,500. Terms, \$1,000 cash, mortgage for balance at 4%, with yearly payments. Name and address of owner, John Emory, Panama, N. Y. Owner will rent for cash or with option to buy.

No. 128 — Farm of $113\frac{3}{4}$ acres; located 4 miles from Ashville P. O., R. D. 65; 4 miles from railway station at Ashville, on line of Erie R. R.; school on farm; 2 miles from Methodist and Baptist churches; $1\frac{3}{4}$ miles from butter factory; 4 miles from milk station. Highways, good. Nearest city, Jamestown, population, about 32,000, $11\frac{1}{4}$ miles distant, reached by rail, trolley or highway. Surface of farm, part level, part rolling. Soil, gravel loam. Acres in meadow, 40; in natural pasture, 50; in timber, 29, maple, beech, hemlock and pine; acres tillable, 60. Fruit, 188 apple, 2 prune, 4 plum, 4 pear and 2 cherry trees, 12 grapevines; also small fruits. Best adapted to corn, oats, wheat and grass. Fences, board, rail and wire, in good condition. House, 12 rooms, in good condition. Barn, 40x48, clapboarded and painted; barn, 36x86, with basement; tool barn; 2 hen houses; 3 silos; milk room with cement floor, all in good condition. Watered, house, by well; barns, running water from well to cement trough in barnyard; fields by

trout brook; 4 miles from Chautauqua Lake. This farm is located 2 miles from high school. Sugar bush. Occupied by owner. Reason for selling, advanced age of owner. Price, \$50 per acre. Terms, $\frac{1}{2}$ down, the balance on time. Address B. W. Lewis, Ashville, N. Y. Owner will rent on shares.

No. 129—Farm of 320 acres; located 7 miles from Ashville P. O., R. D. 64; 5 miles from railway station at Chautauqua, on line of J. C. & L. E. R. R.; 1 mile from school, $\frac{3}{4}$ mile from Methodist church, 2 miles to other churches, 2 miles from milk station, $6\frac{1}{2}$ miles from milk condensing plant and powdered milk factory. Highways, good. Nearest city, Jamestown, 12 miles distant, population, about 32,000, reached by trolley and highway. Surface of farm slightly rolling. Altitude, about 1,500 ft. Soil, loam and gravel, clay sub-soil. Acres in meadow, 70; in natural pasture, 50; in timber, 70, mostly beech and maple. Acres tillable, 200. Fruit, 250 apple trees, 3 pear trees and 2 plum trees. Best adapted to hay, grain, wheat, oats and buckwheat. Fences, mostly wire, some rail, good condition. House, 10 rooms, needs slight repairs. Outbuildings: barn, 60x30; wing, 48x50; two other barns, 30x40, good condition; shop, 18x30, good condition; 4 smaller buildings. Watered, house and barn by well, fields by living springs. This farm is 3 miles from Lake Chautauqua and trolley. Occupied by owner. Reason for selling, ill health of owner. Price, \$30 per acre. Terms, cash or part cash. Address R. M. Hutchinson, Ashville, N. Y., R. D. 64.

TOWN OF POLAND

Population 1,447

No. 130—Farm of 223 $\frac{1}{2}$ acres; located 4 miles from Frewsburg P. O., R. D. 84; 3 $\frac{1}{2}$ miles from railway station at Falconer Junction, on line of Erie & D. A. V. & P. R. R.; 80 rods from school; 3 miles from churches; 4 miles from butter factory; 3 miles from milk station; 4 miles from condensing plant. Highways, good. Nearest city, Jamestown, population, about 32,000, distant 6 miles, reached by highway and trolley. Surface of farm, meadows and upland. Soil, excellent. Acres in meadow, 100; in natural pasture, 123; acres tillable, 100. Fruit, 30 trees. Adapted to almost all kinds of crops. Fences, wire and stumps. Houses, 2, in fair condition. Barns, 4

barns and outbuildings. Watered, house, by pipes from spring; barns, by pipes from springs, and fields by creek. Chautauqua Lake, 7 miles from farm. Congawango creek runs through meadows. Occupied by tenant. Tenant's lease includes agreement of release in case of sale of farm. Reason for selling, owner living at a distance too great to look after the farm personally. Price, \$10,000. Terms, part cash, balance on mortgage if desired. Terms to be agreed upon. Address A. D. Betts, Downing Avenue, Newburgh, N. Y.

No. 131—Farm of 105 acres; located $\frac{3}{4}$ mile from Kennedy P. O., R. D. 72 and railway station, on line of Erie R. R.; $\frac{1}{4}$ mile from school and Protestant churches; 2 miles from butter factory; $\frac{1}{4}$ mile from cheese factory and milk station; $7\frac{1}{4}$ miles from milk condensing plant. Nearest city, Jamestown, population, about 32,000, 9 miles distant, reached by rail and state road. Surface of farm, rolling. Good soil. Acres in meadow, 50; in natural pasture, 55; in timber, 1. Acres tillable, 100. Fruit, 75 apple, 2 cherry, 5 pear and 3 plum trees, also 10 current bushes. Adapted to any crop grown in this climate. Fences, wire, good. House, 9 rooms, good condition. Outbuildings: barn, 30x65, with wing, 35x38; shed, 14x38, good condition; hen house, 10x18; hen and hog house, 16x50. Watered, house and barn, by well; fields, by spring. This farm is 9 miles from Chautauqua Lake. Occupied by tenant. Reason for selling, ill health of owner. Price, \$4,000. Terms to suit purchaser. Address Anderson Gilbert, Kennedy, N. Y. Owner will rent on shares.

TOWN OF PORTLAND

Population 3,058

No. 132—Farm of 30 acres; located 1 $\frac{1}{4}$ miles from Brocton P. O. and shipping station on line of P. & E. R. R.; 1 $\frac{1}{4}$ miles from school and Protestant churches. Highways, level, well graded roads. Nearest large villages, Brocton, population, 2,000, and Dunkirk, 9 miles, population, 17,000, reached by railroad and trolley. Surface of farm, level. Soil, gravel loam. Acres in meadow 7. All tillable. Fruit, 15 acres of grapes. Adapted to fruits or general farm crops. House, 7 rooms, good condition. Basement barn, 26x36, new roof, cement floor, good condition. Watered, by well. This

farm is 2 miles from Lake Erie. Unoccupied. Reason for selling, owner has two farms. This farm lies on both sides of the road, has fine maple drive the entire length. The trees are large and beautiful, 140 of them, can be tapped and syrup made for family use. Price, \$6,000. Terms, part cash, balance on easy terms. Address Wm. Walden, Brocton, N. Y.

No. 133 — Farm of 26 acres; located 5 miles from Westfield P. O., R. D. 20 and railway station, on line of Lake Shore Ry.; 1 mile from shipping station, on line of Lake Shore Ry., close to school, 2 miles from Protestant church, $\frac{1}{2}$ mile from street car line. State road. Nearest city, Dunkirk, 17 miles distant, population, about 17,000, reached by rail. Surface of farm, level. Altitude, about 1,100 ft. Soil, clay loam. Acres in meadow, 5; in natural pasture, 3; in timber, 2; second growth. Acres tillable, 23. Fruit, 50 apple trees, 9 acres of grapes, 25 cherry trees, $\frac{1}{2}$ acre of black berries and plenty of other fruit for home use. Best adapted to fruits and berries. House, large, 14 rooms. Outbuildings: barn, 30x40, with shed. 12x30, packing house, 20x40, with shed. Watered, house and barns, by wells; fields, by running water. Lake Erie is 1 mile from farm. Occupied by owner. Price, \$4,200 for farm, or will include team and tools for \$4,800. Terms, can arrange terms satisfactory to responsible parties. Address Albert Napper, R. D. 20, Westfield, N. Y.

TOWN OF SHERMAN

Population 1,568

*No. 134 — Farm of 140 acres; located 2 miles from Sherman P. O., $1\frac{1}{2}$ miles from railway station at Sherman, on line of Penn. R. R.; school next to farm, 2 miles from Protestant churches, 3 miles from cheese factory, $1\frac{1}{2}$ miles from milk powder factory; 2 miles from milk condensing plant. Highways, good. Eight miles from Chautauqua, a noted summer resort, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,300 ft. Soil, gravel and sandy loam. Acres in meadow, 92; in natural pasture, 4; in timber, 7. Acres tillable, 133. Fruit, 5 trees, apples and pears. Best adapted to corn, potatoes and general crops. Fences, wire and rail, good condition. House, 8 rooms, fair condition.

Outbuildings: 1 basement barn, cement floor, 50x70; leanto, 22x40; shed, 16x40; tool house, 20x40; shed, 16x40. Watered, house by well, barns by well and windmill, fields by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,500. Terms, \$2,000 down, balance at 5%. Address Eckstrom and Frank, agents, 13-14 Gokey Bldg., Jamestown, N. Y.

TOWN OF STOCKTON

Population 1,781

*No. 135 — Farm of 208 $\frac{3}{4}$ acres; located $1\frac{1}{2}$ miles from railway station at Cassadaga, on line of D. A. V. and P. R. R.; $\frac{1}{2}$ mile from Stockton Village. Farm in good state of cultivation. Old house. Large barns will accommodate 50 head of cattle and 6 horses, good condition. \$1,000 worth of farming tools go with the farm. Some timber. This farm is about 12 miles from Lake Erie. Price, \$7,000. Terms, good payment down, balance on mortgage, long time. Address S. Ray Fairbanks, agent, Fredonia, N. Y.

*No. 136 — Farm of 100 acres; located 1 mile west of Stockton Village; 6 miles from Brocton Village; 3 miles from Bear Lake. Fine buildings. Everything in good state of repair. Surface of farm, rolling. Reason for selling, to close an estate. Price, \$5,000. Terms upon application. Address S. Ray Fairbanks, agent, Fredonia, N. Y.

TOWN OF WESTFIELD

Population 4,481

No. 137 — Farm of 77 acres; located $1\frac{1}{2}$ miles from Westfield P. O., R. D. 20, and railway station, on line of Lake Shore R. R.; $1\frac{1}{2}$ miles from school and Protestant churches. Highways in good condition. Nearest city, Dunkirk, 17 miles distant, reached by rail and highway. Surface of farm, level. Altitude, about 1,100 feet. Soil, clay and sandy loam. Acres in meadow, 8, all tillable. Fruit, 19 acres of grapes, 6 acres orchard, 40 acres in general farm land, 4 acres alfalfa. Best adapted to fruit and berries. Brick house, 13 rooms, fair condition. Large and practically new barn with basement for 20 cattle. Watered by well and creek. This farm borders on Lake Erie; good boating, bathing and fishing. Reason for selling, advanced age and ill health of owner. Price, \$250 per acre. Terms, $\frac{1}{2}$ down. Address Walter Persons, Westfield, N. Y., R. D. 20.

* Indicates farm is in hands of agent or real estate dealer.

No. 138 — Farm of 80 acres; located 4 miles from Westfield P. O., R. D. 20; 3 miles from railway station at Westfield, on line of L. S. Ry.; 3 miles from school, Catholic and Protestant churches. Highways good. Nearest city, Dunkirk, 17 miles distant, reached by rail and trolley. Surface of farm, level on lake front. Altitude, about 1,100 feet. Soil, clay loam. Acres in meadow, 12; in natural pasture, 67; in timber, about 25, second growth, hard wood. Acres tillable, about 50. Fruit, 33 acres of grapes, 1½ acres of berries, 200 bearing apple trees, all kinds of fruit for home use. Best adapted to fruit. House, 12 rooms, furnace. Outbuildings, new 30x40 barn, cement blocks, also other outbuildings. Watered, house and barn by well, fields by streams. This farm borders on Lake Erie. Occupied by owner. Reason for selling, ill health of owner. Price, \$12,000. Terms, safe payment down, balance on easy terms. Address E. W. Bacon, Westfield, N. Y., R. F. D. 20.

No. 139 — Farm of 90 acres; located 4 miles from Westfield P. O.; ¾ mile to station Ripley, on line Lake Shore Ry.; school next to farm; 3 miles from Catholic and Protestant churches, with trolley State road. Nearest city, Dunkirk, 22 miles distant, population about 17,000; reached by rail and trolley. Surface of farm level but well drained. Altitude about 700 feet. Soil, sandy and clay loam. Acres in meadow, 15; in natural pasture, 10; all tillable. Fruit, 50 acres grapes. Adapted to fruit and berries. House, large, poor condition, but can be repaired. Outbuildings large, but need some repairs. Watered by well. Lake Erie about ½ mile from house. Occupied. Reason for selling, owned by Welch Grape Juice Company, and for sale because they have decided to do no more farming. Price, \$160 per acre. Terms, ½ cash. Address Welch Grape Juice Company, Westfield, N. Y.

* No. 140 — Farm of 230 acres; located 3 miles from Westfield P. O., R. D. 21; 10 rods from Penn. railway station, 4 trains daily to Buffalo and Pittsburg; 1¼ miles from school; 1¾ miles from Protestant church; 4 miles from butter factory and cheese factory; 10 rods to milk station. Highways somewhat hilly but good. Nearest city, Dunkirk, 17

miles distant, population about 17,000, reached by rail. Surface of farm rolling. Altitude about 1,500 feet. Soil, gravel and sandy loam. Acres in meadow, 40; in natural pasture, 30; in timber, 30, second growth hardwood. Acres tillable, 175. Fruit, 16 acres of grapes, 500 winter pear trees, 10 apple, 20 cherry, 20 prune and plum trees. Adapted to all general farm crops, good alfalfa land. Fences in good condition. House, 12 rooms, steam heat, natural gas, good condition. Outbuildings, one barn 40x90 with ell 20x50, 2 silos 12x25, large barn has basement, stanchions for 30 cows. Watered by springs. Lake Erie is 3 miles distant. Occupied by owner. Reason for selling, advanced age of owner. For price and terms, address E. O. Delaplaine, agent, 5 Welch Block, Westfield, N. Y.

No. 141 — Farm of 105 acres; located 2 miles from Westfield P. O., R. D. 24; 1¼ miles from railway station at Westfield, on line of Lake Shore Ry.; 2 miles from school and churches. Surface of farm slightly rolling. Altitude 550 feet. Soil, clay loam. Acres in meadows, 12; in natural pasture, 20; in timber, 12, mostly small hardwood. Acres tillable, 75. Fruit, about 125 apple trees, 25 acres of grapes, a few pear trees. Best adapted to fruit, corn, grass, oats and wheat. Fences mostly rail and wire, poor condition. House, 22x32 with ell 18x24; woodshed 12x20, fair condition. Outbuildings, barn, shed, packing house, 2 stories. Watered by well, creek and lake. This farm borders on Lake Erie. Occupied by tenant. Price, \$140 per acre. Terms, cash or part cash. Address M. A. Wilson, Westfield, N. Y. Owner will rent.

No. 142 — Farm of 25 acres; located in Westfield, on line of Lake Shore Ry. Surface of farm, level. Soil, gravel loam, 5 acres in meadow, all tillable. Fruit, 9 acres of grapes, 1½ acres of cherries, large tract of currants, red raspberries, pears, peaches, apples and strawberries. Best adapted to fruit and berries. House, modern, 14 rooms, electric and gas light, bath, furnace and all conveniences; 3 minutes' walk from trolley. Outbuildings, good barn, electric lights, also cow barn, hen house, etc. Watered, house and barn by city water. Lake Erie 1

* Indicates farm is in hands of agent or real estate dealer.

mile distant. Occupied by owner. Reason for selling, advanced age and ill health of owner. Price, \$17,500. Address A. H. Harris, Westfield, N. Y.

* No. 143 — Farm of 76 acres; located 2½ miles from Westfield P. O. and railway station, on line of Lake Shore R. R.; 1 mile from school; 2½ miles from Protestant and Catholic churches; 3 miles from cheese factory and milk station. Highways good. Surface of farm generally level, part slightly rolling. Soil, gravel and sandy loam. Acres in meadow, 25, all tillable. Fruit, 20 apple and 5 cherry trees, 10 acres of vineyard. Best adapted to fruit and general crops. Fairly good house, needs some repairs. Good basement barn 40x60. Watered, house and barn by well, fields by springs. Occupied by owner. Reason for selling, advanced age and poor health of owner. Price, \$4,500. Terms \$1,500 cash, balance on long time at 6%. Address E. C. Delaplain, agent, Westfield, N. Y.

* No. 144 — Farm of 29 acres; located 1¼ miles from Westfield P. O. and railway station, on line of Lake Shore R. R.; 1¼ miles from high school, Catholic and Protestant churches. Highways in excellent condition. Surface of farm slightly rolling. Soil, sandy and gravelly loam, all tillable. Fruit, place all set to fruit trees and grapes, apples, pears, peaches, plums and prunes. No buildings. Reason for selling, to close an estate. Price, \$4,500. Terms, \$1,000 cash, balance on time at 6%. Address E. C. Delaplain, agent, Westfield, N. Y.

* No. 145 — Farm of 30 acres; located 3 miles from Westfield P. O. and railway station, on line of Lake Shore R. R.; 3 miles from high school, Catholic and Protestant churches. Highways in excellent condition. Surface of farm, level. Soil, sandy and clay loam. Acres in meadow, 15, nearly all tillable. Fruit, only a small quantity for home use. Especially adapted to fruits. Good small house, 6 rooms. Medium size barn, fair condition. Watered, house by well and cistern, barn by well, fields by stream. This farm is on the bank of Lake Erie. Occupied by tenant. Reason for selling, owner engaged in other business. Price, \$4,800. Terms, ½ cash, balance on long

time. There is good boating, bathing and fishing. Address E. C. Delaplain, agent, Westfield, N. Y.

No. 146 — Farm of 180 acres; located 5 miles from Sherman P. O.; 4 miles from railway station at Ripley Crossing, on line of Lake Shore and M. S. R. R.; ¼ mile from school; country churches nearby; milk wagon passes farm; 3 to 5 miles from cheese factories. Good soil, very few stones. About ½ of farm tillable, ½ in natural pasture and timber, mostly hardwood. Fruit, part old and part new orchard, variety of trees. Best adapted to general farm crops. Fences mostly barbed wire. Large roomy farm house with two verandas. Outbuildings, barn 40x100 with addition; modern barn with silo; 100 ton hay barn; granary; basement stables. Watered by well, spring and creek. Cement milk house with drilled well; drilled well in barn with windmill, also gasoline pumping outfit in milk house. Occupied by tenant. Reason for selling, owner retiring from business. R. F. D. daily. Telephone in house. Price, \$6,500. Terms, safe payment down. Address Hermon L. Kent, 72 South Portage Street, Westfield, N. Y.

No. 147 — Farm of 50 acres; located 8½ miles from Westfield P. O.; 4¼ miles from railway station at Ripley Crossing, on line of L. S. and M. S. railroads; ¼ mile from school; 3 miles from churches; 5 miles from milk station and milk condensing plant; milk wagon passes farm. Surface of farm, slightly sloping. Soil, fine and productive. Most of farm in meadow, nearly all tillable. Fruit, an apple orchard. Best adapted to general farming and dairying. Fences mostly barbed wire. Farm house, good condition. Outbuildings, two barns, hen and hog house. Watered, house and barns by well, fields by creek. This farm is 5¼ miles from Lake Erie. Occupied by tenant. Reason for selling, owner retiring from business. Price, \$3,500. Terms, ¼ to ½ down. Address Hermon L. Kent, 72 South Portage Street, Westfield N. Y.

* No. 148 — Farm of 170 acres; located 2½ miles from Westfield P. O. and railway station, on line of Lake Shore Ry.; 2½ miles from high school, Catholic

* Indicates farm is in hands of agent or real estate dealer.

and Protestant churches. Highways level and good. Surface of farm, level. Soil, sandy loam, all tillable. Best adapted to fruit. Good house but old-fashioned. Barn and cow stables, fair condition. Watered, house and barn by well, fields by stream. This farm is almost on the bank of Lake Erie. Occupied by owner. Reason for selling, advanced age of owners. Price, \$200 per acre. Terms, \$5,000 cash, balance on long time at 6%. Address E. C. Delaplain, agent, Westfield, N. Y.

* No. 149 — Farm of 40 acres; located 4 miles from Westfield P. O. and railway station; 4 miles from school and church. Highways in good condition. Surface of farm, rolling. Soil, gravel loam, all set to Concord grapes. No buildings. Worked by owner. Reason for selling, advanced age of owner. Price, \$9,000. Terms, half cash. Address E. C. Delaplain, agent, Westfield, N. Y.

* No. 150 — Farm of 43 acres; located 4 miles from Westfield P. O.; 1 mile from railway station at Forsythe, on line of N. Y. C. R. R.; 1 mile from school; 4 miles from church. Highways in good condition. Surface of farm, level. Soil, gravel loam, all set to Concord grapes. Good house. Barn 50x80 with well inside. Watered by well. Occupied by owner. Reason for selling, advanced age of owner. Price, \$12,000. Terms, half cash. Address E. C. Delaplain, agent, Westfield, N. Y.

* No. 151 — Farm of 28 acres; located 4 miles from Westfield P. O. and railway station, on line of N. Y. C. R. R.; 4 miles from school and churches. Highways good. Surface of farm practically level. Soil, sandy and gravel loam. Acres in meadow, 13; in natural pasture, 3. Acres tillable, 25. Fruit, 12 acres of grapes. Good house, 8 rooms. Barn 40x60, good. Watered, house and barn by well, fields by spring. Occupied by owner. This farm is 1 mile from Lake Erie. Reason for selling, owner wants to buy larger place. Price, \$8,000. Terms, half cash. Address E. C. Delaplain, agent, Welch Block, Westfield, N. Y.

* No. 152 — Farm of 30 acres; located 2 miles from Westfield P. O. and railway station, on line of N. Y. C. R. R.;

2 miles from school and churches. Highways in good condition. Surface of farm, slightly rolling. Soil, gravel loam. Acres in meadow, 2½; in natural pasture, 2. Acres tillable, 25. Adapted to general farming. House, 5 rooms. Small barn, needs repairs. Watered by well. This farm is one mile from Lake Erie. Occupied by owner. Reason for selling, owner wants larger place. Price, \$4,500. Terms, half cash. Address E. C. Delaplain, agent, Welch Block, Westfield, N. Y.

* No. 153 — Farm of 75 acres; located 3 miles from Westfield P. O. and railway station, on line of N. Y. C. R. R.; 3 miles from school and church; 4 miles from milk station and milk condensing plant. Surface of farm, hilly but not broken. Soil, loam. Acres, in meadow, 4; in natural pasture, 20; in timber, 25, second growth. Acres tillable, 12. Best adapted to general farming. House, 7 rooms, practically new. Large barn in good repair except roof. Watered by well. This farm is 4 miles from Lake Erie. Occupied by tenant. Reason for selling, owner a physician who cannot attend to farm. Price, \$4,500. Terms, half cash. Address E. C. Delaplain, agent, Welch Block, Westfield, N. Y.

No. 154 — Fruit farm of 24 acres; located about 1 mile from Westfield P. O. and railway station, on line of Lake Shore and Chicago and St. Louis R. R. and near Chautauqua & Lake Erie R. R., the leading grape station, also Chautauqua Traction Co. and Buffalo and Lake Erie Traction Co's lines. Center of the Chautauqua and Erie Grape Belt. Fine churches and public schools, near Dunkirk, Erie and Buffalo on shore of Lake Erie, about 1½ miles from Lake Erie; 8 miles from Chautauqua Lake with trolley to the famous National Chautauqua Assembly Grounds. The land for sale consists of about 16 acres of grapes, 3 acres of meadow, balance pasture. Has large red grape packing house which could be converted into a residence if desired or owner could live in town and work the place. Price, \$4,500. Terms, safe payment down, balance, liberal time if desired. Reason for selling, owner is retiring from business and has several other places. Address Hermon L. Kent, 72 South Portage St., Westfield, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

CHEMUNG COUNTY

Area, 513 square miles. Population, 54,662. Annual precipitation, 33.74 inches. Annual mean temperature, 50.9°. Number of farms, 2,193. Average price of farm land per acre, \$33.56. The value of all farm property is \$10,288,587. This is a remarkably low price for good farm lands. That the farmers of this county are prosperous is proved by an increase in the value of farm buildings of nearly \$700,000 during the last ten years.

This is a lower tier county bordering on Pennsylvania and one of the smaller counties of the state.

The surface is uneven and rolling, in some places rising in considerable mountains. The country along the river banks is level and alluvial and those flats are in some places extensive and exceedingly fertile. There is considerable timber on the more mountainous portions of the county. It is well watered by springs, creeks, ponds and the Chemung river. Along the broad valley of this river tobacco is extensively grown, producing more of that material than any other area of its size in the state. There are several streams tributary to the Chemung river whose valleys are now bordered by steep hills with a soil and gravelly loam intermixed in some places with clay. There are ample markets for all products of the county and the trunk lines of transportation give easy access to inexhaustible markets both in New York and Pennsylvania.

The leading crops are as follows: corn, 106,999 bushels; oats, 253,138 bushels; buckwheat, 188,079 bushels; potatoes, 370,110 bushels; hay and forage, 51,053 tons; tobacco, 2,903,700 pounds. Domestic animals are as follows: dairy cows, 11,035; horses, 5,421; swine, 4,099; sheep, 7,000; poultry 92,712; total receipts for dairy products, \$521,565; amount of milk produced, 5,539,750 gallons. There are 111 district schools, a college located at Elmira, where is also one of the New York State reformatory institutions and the Erie Railroad car shops which employ a large number of workmen.

TOWN OF BALDWIN

Population 476

No. 155 — Farm of 70 acres; 5 miles from Lowman station and postoffice, R. D.; 5 acres of timber. This farm lies well and is in good condition; 3 miles from State road; 2 apple orchards, a windmill at the barn; well and cistern in house. Good fences. The house is nearly new, with 9 rooms and 5 large clothespresses, large pantry. Barn, 32x61; granary, 16x29; cow stable, 26x36; large workshop. Price, \$2,700. Terms, $\frac{1}{2}$ cash, balance on time. This farm has never been rented. Address R. B. Osborne, Lowman, N. Y. R. D. 1, Box 15.

No. 156 — Farm of 257 acres, $2\frac{1}{2}$ miles from Lowman P. O. and $2\frac{1}{2}$ miles from station on D., L. & W. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches; on line of R. D. 2 from Lowman; $3\frac{1}{2}$ miles from milk station and cheese factory. Highways, good. Nearest city, Elmira, population 38,000, distant $4\frac{3}{4}$ miles. Surface of farm, lying on top of hill, but level and rolling. Soil, mostly clay subsoil. Acres in meadow, 50; natural pasture, 80; timber, 60. Estimated 50,000 feet of sawing timber, pine, chestnut, oak, basswood and ash. Acres tillable, 100. No fruit. Best

adapted to hay, barley, buckwheat, potatoes, etc. Good fences, wire, House, 9-room cottage, in good condition. Outbuildings: pigpen and corncrib, 16x20, grain barn, 30x40, tool-house, 20x20, cow barn, 24x48, concrete floor. The buildings are in very fair condition. Tool shed and addition to cow barn have new iron roof. Water can be brought to barns at small expense. Watered, house by well and tank near barn; fields, by springs. Reason for selling, closing estate. Price, \$4,000, including 10 cows now on the farm. Terms, \$1,000 cash, balance on long time at 5%. Address E. M. Lowman, Lowman, N. Y. Owner will rent for cash or on shares.

No. 157 — Farm of 250 acres; located 9 miles from Elmira P. O., R. D. 1; 5 miles from railway station at Erin, on lines of Lehigh R. R.; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from church; 2 miles from butter factory and milk station; 9 miles from milk condensing plant. Highways, in good condition. Nearest city, Elmira, population about 38,000, reached by highway. Surface of farm, part hilly and part level. Soil, clay and loam. Acres in meadow, 50; in natural pasture, 50; in timber, 80, hard and soft

wood. Acres tillable, 120. Fruit, 75 apple, 5 cherry, 6 pear and 6 plum trees. Best adapted to corn, wheat, rye, oats and buckwheat. Fences, American wire and stone wall. House, 14 rooms, good condition. Outbuildings: Barn, 48x36; barn, 38x40; granary, 25x20; shop, 18x20, and hoghouse, 20x30. Watered by well, spring and creek. Occupied by owner. Reason for selling, ill health of owner. Barn, 38x30 for cows now being constructed. Price, \$5,000. Terms, part cash. Address Clark S. Bowman, Lowman, N. Y., R. D. 1.

No. 158 — Farm of 230½ acres; located 8 miles from Lowman P. O., R. D. 1; 5 miles from railway station at Erin on line of Lehigh R. R.; 1 mile from school; 2 miles from churches; 1½ miles from butter factory; 5 miles from cheese factory and milk station; 9 miles from milk condensing plant. Highways in fair condition. Nearest city, Elmira, 9 miles distant, population about 38,000, reached by highway. Surface of farm, some rolling and some nearly level. Soil, mostly dark loam, clay sub-soil. Acres in meadow, 88; natural pasture, 74; timber, 42, hemlock, basswood, ash, beech, maple and cherry. All cleared land is tillable. Fruit, about 30 old trees; also some young trees of apples, pears, plums and cherries. Best adapted to oats, corn, buckwheat, wheat, potatoes, barley and beans. Fences, mostly wire and rail, some pine stump and stone. House, 11 rooms, good condition. Outbuildings, barn, 30x40; barn, 32x60, with leanto, 16x54; 14 stanchions for cows; 8 horse stalls, cement floor. Watered, house, by well; barns, by spring; fields, by spring and small creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$4,300. Terms, cash. Address W. H. Brewer, Lowman, N. Y., R. D. 1.

No. 159 — Farm of 98 acres; located 1 mile from N. Chemung P. O. R. D. 1; 5 miles from railway station at Erin, on line of Lehigh Valley R. R.; 1 mile from school and Methodist church; 80 rods from butter factory; 3 miles from milk station; 8 miles from milk condensing plant. Highways in good condition. Nearest city, Elmira, 8 miles distant, reached by highway. Surface of farm, part rolling and part level. Soil, gravel. Acres in meadow, 10; in natural pasture, 32. Acres tillable, 66. Fruit, apple orchard. Adapted to clover and

corn. Fences, some wire and some board. House, good size, fair condition. Outbuildings, basement barn, 36x46; basement barn, 26x36. Watered by well and spring. Occupied by owner. Price, \$3,500. Terms cash. Address T. O. Crandall, Lowman, N. Y. Owner will rent for cash.

No. 160 — Farm of 385 acres; located 10 miles from Elmira; 5 miles from railway station at Erin, on line of Lehigh Valley R. R.; R. D. 2 from Lowman; 1½ miles from school and Baptist church; 1 mile from butter factory; 9 miles from milk condensing plant. Highways good. Surface of farm, rolling and level. Soil, clay sub-soil. Acres in meadow, 100; in natural pasture, 200; in timber, 85, hemlock, ash, basswood, maple and beech. Acres tillable, 300. Fruit, apples, pears, cherries, plums and peaches. Best adapted to oats, barley, buckwheat, potatoes and wheat. Fences, rail, stone and wire, fair condition. House 28x32, 13 rooms, good condition. Outbuildings, cow barn, 50x24; underground stables, 30x40 with shed, 100x16; silo; barn, 26x52 with shed, 80x16; barn, 30x40; sheep barn, 16x24; horse barn, 20x30, with stables, 12x16. Watered, house by well, barns by springs and well, field by springs. Occupied by owner. Reason for selling, advanced age and ill health of owner. Price, \$7,000. Terms, one-half cash, balance on time. Address Fox or Levi Little, Lowman, N. Y., R. D. 1.

TOWN OF BIG FLATS

Population 1,535

No. 161 — Farm of 70 acres; located 2 miles from Big Flats P. O. and railway station; on line of Erie and D. L. & W. Railways; 2 miles from High school; Protestant churches, butter factory and milk station; 7 miles from milk condensing plant. Nearest cities, Corning, 9 miles and Elmira, 10 miles, reached by rail and highway. Highways good. Surface of farm, part level, part rolling. Good soil. Acres in meadow, 20; in natural pasture, 20; in timber, 30, oak, chestnut, maple, hemlock, pine, etc. Acres tillable, 40. Fruit, apples, pears, plums, cherries and grapes, also berries. Best adapted to hay, corn, wheat, oats, buckwheat, potatoes, etc. Fences good, mostly woven wire. House, 11 rooms, fine condition. Outbuildings, barn, 30x40, good; horse barn, 26x30, new with wagon house; granary and hen house.

Water piped to house. Occupied by owner. Reason for selling, poor health of owner. Price, \$2,500. Terms, \$1,500 cash, balance on mortgage. Address J. D. Ellis, Big Flats, N. Y., Box 54.

TOWN OF ERIN
Population 889

No. 162 — Farm of 139 acres; located 1 mile from P. O.; 1 mile from railway station at Swartwood, on line of L. V. R. R.; 1 mile from school and Methodist church; $\frac{3}{4}$ mile from butter factory; $3\frac{1}{2}$ miles from milk station. Highways, good. Nearest village, Van Etten, 4 miles distant; Spencer, 8 miles distant; Elmira, population 38,000, 19 miles distant, reached by both rail and highway. Surface, part hilly. Soil, clay and loam. Fruit, 60 or more apple trees. Best adapted to hay, buckwheat, potatoes and dairying. Fences, board, rail and wire, not very good. House, 20x32; 2 barns, 30x40. Watered, house, by well; barns, by brook; fields, by brook and spring. Unoccupied. Reason for selling, death of owner. Price, \$1,700. Terms, part cash. Address Sophie A. White, 58 Port Watson Street, Cortland, N. Y.

No. 163 — Farm of 312 acres; located $1\frac{1}{2}$ miles from North Chemung P. O., R. D.; 3 miles from railway station at Breesport, on line of the L. V. R. R.; $\frac{1}{2}$ mile from school and Union church; 1 mile from butter factory; 3 miles from milk station. Highways, good. Nearest city, Elmira, population 38,000, distant 8 miles by highway. Surface of farm, a little rolling. Soil, gravel and loam, very good. Sixty acres of meadow; about 50 of natural pasture; 40 to 50 acres of timber, of all kinds and very good; 250 acres are tillable. Plum, cherry, pear and apple trees. Can raise hay, corn, wheat, oats, buckwheat and general crops. Fences, wire and stumps, in fair condition. 2 houses, one nearly new, 16x32, bay window and porch, 2 stories, with ell, 16x24, with porch, woodhouse, and a fairly good tenant house. 3 barns with basements; No. 1, 34x118, straw shed attached and large silo; No. 2, 32x44, with basement; horse barn, 28x32. House has well water; barns have creek and spring, never-failing; fields have creek and springs. The Chemung River is about 5 miles distant. This is a first-class dairy farm and owner will give cows with farm.

Occupied by tenant. Can give possession any time. Reason for selling, old age of owner. Price, \$8,000. Terms, $\frac{1}{2}$ cash, balance very easy terms. Address Seymour Seeley, Spencer, N. Y. Owner will rent.

TOWN OF HORSEHEADS
Population 5,376

No. 164 — Farm of 110 acres; located 2 miles from Horseheads P. O. and railway station, on line of Erie, N. C. & D., L. & W. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches, butter factory and milk station. Highways, good. Nearest city, Elmira, population 38,000, reached by rail and highway, 8 miles distant. Surface of farm, rolling. Soil, clay loam. Four acres of oak timber. Acres tillable, 106. Fruit, apples and pears. Best adapted to corn, oats, wheat and tobacco. Fences, wire and board. House, 10 rooms, fair condition. Outbuildings, barn, 30x40; barn, 20x50; barn, 16x32; barn, 30x40. Watered by well, windmill and springs. Occupied by tenant. Reason for selling, to close an estate. Price, \$6,500. Terms cash. Address Geo. B. Manning, Horseheads, N. Y.

No. 165 — Farm of 65 acres; located 2 miles from Horseheads P. O. and railway station, on line of Erie, Lackawanna, Pennsylvania and Lehigh Valley Railways; $\frac{1}{2}$ mile from school; 2 miles from churches, butter factory and milk station. Highways, good. Nearest city, Elmira, 4 miles distant, reached by highway. Surface of farm, rolling. Soil, clay and gravel. Acres in meadow, 45; in natural pasture, 12; in timber, 8, oak, second growth. Acres tillable, 57. Best adapted to corn, beans, oats, potatoes and rye. Fences, wire and rail. Watered by springs. No house or barn. Worked by owner. Reason for selling, owner has too much land. Price, \$8,000. Terms, $\frac{1}{2}$ cash. Address John McCann, Elmira, N. Y., R. D. 1.

TOWN OF SOUTHPORT
Population 2,034

No. 166 — Farm of 63 acres; located 4 miles from Pine City P. O., R. D. 2; $6\frac{1}{2}$ miles from railway station at Pine City, on line of Erie R. R.; $\frac{3}{4}$ mile from school; 4 miles from Protestant church; $3\frac{1}{2}$ miles from cheese factory; 6 miles from milk condensing plant.



FIG. 109.—HOUSE ON FARM No. 222, TOWN OF SHERBURNE, CHENANGO COUNTY.

Highways, good. Nearest city, Elmira, population about 38,000, $6\frac{1}{2}$ miles distant, reached by highway. Surface of farm, rolling. Altitude, about 2,000 feet. Soil, loam, clay sub-soil. Acres in meadow, 25; in natural pasture, 6; in timber, $3\frac{1}{2}$, hard wood, maple, ash, oak, and chestnut. Acres tillable, 54. Fruit, about 30 trees, apples, pears, cherries put out about 4 years ago, 10 old apple trees. Best adapted to potatoes, buckwheat, oats, corn, etc. Fences, wire and stump, good condition. House, medium size, good condition. Outbuildings, medium size barn, good condition. Watered, house and barn by well; fields by springs. Occupied by owner. Reason for selling, owner desires to buy a larger farm. Price, \$1,500. Terms, \$1,000 down, balance on time to suit purchaser. Address Carl F. Kakritz, Pine City, N. Y., R. D. 2.

TOWN OF VETERAN

Population 1,470

No. 167—Farm of $227\frac{1}{2}$ acres; located $3\frac{1}{2}$ miles from Alpine P. O., R. D.

3 and railway station, on line of Lehigh Valley Ry.; $\frac{1}{2}$ mile from school; 2 miles from Baptist church; 8 miles from butter factory and cheese factory; 3 miles from milk station. Highways, somewhat hilly, but good. Nearest large village, Horseheads, 8 miles distant, population about 1,800, reached by highway and electric cars. Surface of farm, rolling. Altitude, about 1,400 feet. Soil, gravelly loam. Acres in meadow, 60; in natural pasture, 60; in timber, $27\frac{1}{2}$, hemlock, chestnut and pine, good. Acres tillable, 200. Fruit, 85 apples, 6 pear, 12 plum and 4 cherry trees. Best adapted to oats, buckwheat, corn, potatoes, beans and hay. Fences, rail and wire, good. House, 18 feet high, 2 up-rights, 16x24 and kitchen, 22x24. Outbuildings, barn, 86x46, new; barn, 36x48, good; also other outbuildings. Watered, house by well and spring; barn by well; fields by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$35 per acre. Terms, $\frac{1}{3}$ cash, remainder on mortgage. Address John Hamilton, Alpine, Schuyler County, N. Y.

CHENANGO COUNTY

Area, 898 square miles. Population, 35,575. Annual precipitation, 56.23 inches. Annual mean temperature, 47.4° . Number of farms, 4,258. Average price of farm land per acre is \$27.63. With an increase of nearly \$2,000,000 in the value of farm buildings alone there must be prosperity among the farmers and it seems inevitable that land values should show a decided increase during the next two years.

This is one of the interior counties lying southeast of the center of the state.

The surface is elevated and in some places broken and hilly. Two broad and deep valleys traverse the county from north to south. These ridges are subdivided by numerous lateral and some parallel valleys. The summits of these ridges are broad and rolling with an elevation of 300 to 800 feet. There is considerable timber on this upland. Streams, brooks, and springs abound throughout the county and furnish abundant water for villages and farms. Tully limestone and Genesee slate and sandstones are found in the southern part of the county. The sandstone quarries furnish good material for building and flagging. Grindstone and whetstones are quarried near Oxford.

The soil of the county is almost entirely derived from the disintegration of the rocks and is strong and productive. The D., L. & W.; N. Y., O. & W. and D. & H. railroads give ample, cheap and quick transportation of all farm products to the great markets of the state. Dairying is the great industry and the production was 29,919,490 gallons of milk; receipts from the sale of dairy products, \$2,957,886. There are fifty-eight milk stations and factories in this county. The leading crops grown were corn, 177,897 bushels; oats, 440,758 bushels; barley, 4,935 bushels; buckwheat, 75,922 bushels; potatoes, 671,087 bushels; hops, 69,749 pounds; hay and forage, 222,054 tons. The value of all farm property is \$20,912,000, an increase of 19.2 per cent. over that of ten years ago.

Chenango is an excellent fruit county; some of the famous apples originated in this county, notably the Chenango strawberry apple. There are churches of all

denominations located in the rural districts, and the 355 district schools, graded and high schools in villages furnish ample educational facilities. There are 1,661 miles of improved highway and 54 miles of state road.

TOWN OF AFTON

Population 1,780

No. 168 — Farm of 220 acres; located 2 miles from Harpursville P. O., R. D. 1; $1\frac{1}{2}$ miles from railway station at Harpursville, on line of D. & H. Ry.; $\frac{1}{2}$ mile from school; 2 miles from churches; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Binghamton, 23 miles distant, population about 48,000, reached by rail. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 75; in natural pasture, 100; in timber, 45, hemlock, chestnut and hardwood. Acres tillable, 150. Fruit, young orchard. Best adapted to hay, corn, potatoes, oats and buckwheat. Fences, wire, good. House, 13 rooms, good condition. Outbuildings, barn, 66x30, with basement for 40 cows, cement floor, steel stanchions and water buckets in reach of cows, horse barn attached, 26x36; granary, 18x24, good condition. Watered by spring and creek. This farm is $1\frac{1}{2}$ miles from Susquehanna River. Occupied by owner. Reason for selling, owner desires to engage in other business. Price, \$6,000. Terms, \$2,000 down, remainder on easy terms at 5% interest. Address A. B. Pratt, Harpursville, N. Y., R. D. 1.

*No. 169 — Farm of 230 acres; located 6 miles from Afton P. O., R. D. 2 and railway station, on line of D. & H. Ry.; 1 mile from school; 3 miles from Protestant churches; 6 miles from butter factory, milk station and milk condensing plant; 8 miles from cheese factory. Highways, somewhat hilly but good. Surface of farm, part hilly and part level. Altitude, about 850 feet. Soil, clay loam and red shale. Acres in meadow, 50; in natural pasture, 40; in timber, 60, maple, chestnut, oak and hemlock. Acres tillable, about 80. Fruit, apples and cherries. Best adapted to oats, hay, potatoes, millet and buckwheat. Fences, wire, pole and rail, good condition. House, good size, also tenant house. Outbuildings, 2 barns, shed and outbuildings, all in good condition. Occupied by owner. Reason for selling, advanced age of owner. Price, including 12 cows, team and tools, \$4,500.

Terms, \$1,500 down, balance to suit purchaser. Address Volney K. Soule, agent, Binghamton, N. Y.

* No. 170 — Farm of 225 acres; located 6 miles from Afton P. O., R. D. No. 2, and railway stations at Afton and Bainbridge, on line of D. and H. R. R.; 1 mile from school; 6 miles from three milk stations, on milk route to Borden's. Highways hilly but good. Surface of farm, partly level and partly rolling. Altitude 1,000 feet. Good productive soil. Acres of timber, 100, mostly hardwood, some hemlock and pine, balance in meadow and pasture. Fruit, an abundance of apples, pears, cherries, plums and grapes. Fences mostly wire, good condition. House, 12 rooms, good condition. Outbuildings, basement barn 48x70, good repair, also a good hen house. Tenant house on farm. Watered, house and barn by running water, fields by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,700. Terms, $\frac{1}{2}$ cash. Address Darwin H. Craig, agent, Afton, N. Y.

* No. 171 — Farm of 182 acres; located 3 miles from Afton P. O., R. D. No. 1, and railway stations at Afton and Bainbridge, on line of D. and H. R. R.; $\frac{3}{4}$ mile from school; $\frac{1}{2}$ mile from churches; 3 miles from two milk stations, on milk route to Borden's. Highways slightly rolling. Surface of farm rolling. Altitude 1,000 feet. Soil very productive. Acres in meadow, 90; in natural pasture, 50; in timber, 40, second growth. Acres tillable, 92. Fruit, 50 nice apple trees, also pears and plums. Fences mostly woven wire, fine condition. House, 2 stories, 9 rooms, good condition. Outbuildings, basement barn, concrete floor, 25 cow stanchions, excellent condition, new silo, horse barn with 4 horse stalls, good condition, new hen house 12x30, also ice house. Watered, house by well, barn by brook, fields by springs. This farm is 3 miles from Susquehanna River. Occupied by owner. Price, \$4,800. Terms, \$3,000 down. Address Darwin H. Craig, agent, Afton, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 172—Farm of 194 acres; located 2 miles from Afton P. O., R. D. No. 1, and railway station, on line of D. and H. R. R.; a few rods from school; $\frac{1}{2}$ mile from Methodist church; 2 miles from two milk stations, on milk route to both. Surface of farm, 35 acres of creek flats, balance level or sloping. Altitude 1,000 feet. Fences, part wire and part rail, good condition. House, 10 rooms, first-class condition. Outbuildings, large, new basement barn, concrete floor, patent stanchions, two hen houses, ice house, milk house, tenant house and corn house, all in good repair. Watered, house by well, barn by running water, fields by springs and creeks. This farm is 2 miles from Susquehanna River. Occupied by tenant. Reason for selling, owner wants to go into other business. Price, \$11,000, including 36 head of Holsteins, all tools and hay. Terms, part down, balance on easy terms. This is an excellent dairy farm. Address Darwin H. Craig, agent, Afton, N. Y.

* No. 173—Farm of about 165 acres; located 3 miles from Afton P. O., R. D. No. 1, and railway station, on line of D. H. R. R., 1 mile from school, 3 miles from churches, butter factory, milk station and milk condensing plant. Highways, slight grade except $\frac{1}{2}$ mile. Surface of farm, rolling, no steep hills, except in one pasture. Altitude, about 1,500 ft. Soil, gravelly loam, good. Acres in meadow, 50; in natural pasture, 70; in timber, 35, beech, maple, oak and second growth hemlock, all good quality. All tillable, except timber land. Fruit, 25 trees. Best adapted to hay and grain. Fences, wire, board and rail, fair to good condition. House, $1\frac{1}{2}$ stories, 35x40, with wing of 1 story, fair condition. Out buildings, barn for hay and stock, 118x50, with silo inside; house for swine, 20x30; corn crib, 14x16; hen house, 10x24; wood house, 13x32, fair condition. Watered by never failing springs. Occupied by tenant. Price, \$6,000. Terms, \$3,000 cash, remainder on mortgage at 5% interest. Address M. E. Page, agent, Phelps Bldg., Binghamton, N. Y. Owner will rent.

* No. 174—Farm of 30 acres; located $2\frac{1}{2}$ miles from Afton P. O., R. D. No. 2 and railway station, on line of D. & H. R. R., 10 rods from school, $2\frac{1}{2}$ miles

from Protestant churches, 3 miles from Catholic church. This farm is on milk route to shipping station. Highways, level. Nearest city, Binghamton, 28 miles, reached by rail and highway. Surface of farm, level. Altitude, 850 ft. Soil, loam. Plenty of fruit. Best adapted to potatoes, corn, oats and cabbage. Fences need some repairs. House, large, 12 rooms, good condition. Outbuildings, good barn, 2 hen houses. Watered, house by running water; barn by well; fields, by creek and springs. Farm borders on Susquehanna river, Afton Lake nearby. Unoccupied. Reason for selling, owner living in city. Price, \$2,000. Terms, $\frac{1}{2}$ down, balance easy. Address Darwin H. Craig, agent, Afton, N. Y.

* No. 175—Farm of 182 acres; located 3 miles from Afton or Bainbridge P. O., R. D. No. 1, 3 miles from railway station at Afton or Bainbridge, on line of D. & H. R. R., $\frac{3}{4}$ mile from school, $\frac{1}{2}$ mile from Methodist church. Highways in good condition, mostly level. Nearest city, Binghamton, 26 miles distant, reached by rail and highway. Surface of farm, meadows lie mostly level, pastures sloping. Altitude about 850 ft. Soil, loam. Acres in meadow, 92; in natural pasture, 50; in timber, 40; second growth. Fruit, apples, pears and plums. Best adapted to potatoes, corn, cabbage and oats. Fences, all wire, first-class condition. House, 2 stories, 9 rooms, good condition. Outbuildings, basement barn; concrete stable; 25 cow stanchions; horse barn, with 4 stalls; new hen house, 12x30; ice house and milk house, all in good condition. Watered by well, running water, springs and brook. Occupied by owner. Reason for selling, owner unable to work farm. Price, \$4,500. Terms, \$2,700 down, balance on easy terms. Address Darwin H. Craig, agent, Afton, N. Y.

* No. 176—Farm of 160 acres; located $3\frac{1}{2}$ miles from Afton P. O., R. D. No. 2, $2\frac{1}{2}$ miles from railway station at Nineveh, on line of D. & H. R. R., on milk route to Borden's shipping station at Afton. Highways, somewhat hilly, but good. Nearest city, Binghamton, 24 miles distant, reached by rail and highway. Surface of farm, part level, part rolling. Altitude, 900 ft. Soil, loam. Acres in timber, 60; second

growth. Acres tillable, 100. Fruit, about 50 apple trees. Best adapted to potatoes, corn, oats and cabbage. House, 8 rooms, unpainted, but otherwise in good condition. Outbuildings, basement barn, 30x40; 18 cow stanchions, good condition; good hog house, tool shed and hen house. Watered by well, springs and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$2,200. Terms, \$500 down, balance easy. Address Darwin H. Craig, agent, Afton, N. Y.

TOWN OF BAINBRIDGE

Population 2,017

No. 177 — Farm of 166 acres; located 3 miles from Bainbridge P. O., R. D. 1; 3 miles from Bainbridge railway station, on line of D. & H. R. R.; 1 mile from school; 1½ miles from churches (Methodist and Baptist); 3 miles from butter factory and condensing plant. Highways, some hilly, but good. Nearest city, Binghamton, population 48,443, 35 miles by rail and highway. Surface features, rolling and level. Soil, fertile, clay subsoil. Acres in meadow, 40; pasture, 76; timber, 50, hemlock and pine, second growth, beech, birch and maple. Land all tillable except wood lot. Best adapted to corn, oats, potatoes, millet and grass. Fences, wire and rail, in good condition. House, good, 16-room house, cellar under all, flag bottom. Outbuildings, barn, 40x44; basement, concrete floor; wagon barn, 30x40, with stables, 16x40; cornhouse, 16x20; 2 large hen houses; large wheel and saw for cutting wood. Watered, house, by well; barns and fields, by creeks. Brocket Lake, 3 miles. Occupied by owner. Owner will sell stock and tools with farm if desired, at a low cost. Reason for selling, poor health of owner. Price, \$3,500. Terms, part cash, balance to suit purchaser. Address A. L. Ireland, Bainbridge, N. Y.

No. 178 — Farm of 300 acres; located 1½ miles from Bainbridge P. O.; 1½ miles from railway station at Bainbridge, on line of D. & H. R. R.; 1/10 mile from school; 1½ miles from Baptist, Methodist, Catholic and Presbyterian churches; 1½ miles from milk station; 4 miles from condensing plant. Highways, hilly but good. Nearest city, Binghamton, population 48,443, 35 miles distant, reached by D. & H. R. R. Sur-

face of farm, part level and part rolling. Soil, good. Acres in meadow, 125; in natural pasture, 100; in timber, 50, oak, chestnut and pine; acres tillable, 250. Fifty apple trees. Best adapted to hay, corn, oats and potatoes. Fences, wire and rail, in good condition. Large 2-story house, in good condition. Large basement barn, 100x40; cement basement; horse barn, hay barn; corn house and milkhouse. House watered by well; barns, by running water; fields, by springs; 1½ miles from Susquehanna river; \$5,000 worth of standing timber on this farm. Will keep 50 cows. Occupied by tenant. Reason for selling, poor health of owner. Price, \$10,000. Terms, cash. Address D. J. Baker, Bainbridge, N. Y.

TOWN OF COLUMBUS

Population 838

No. 179 — Farm of 200 acres, 5 miles from Sherburne P. O. and New Berlin P. O., R. D. 1; on line of D. L. & W. and O. & W. R. R.; ¾ mile from school; 1½ miles from three churches; 5 miles from milk station and condensery. Highways, good. Surface features, rolling. Soil, gravelly loam, good. Acres in meadow, 50; natural pasture, 125; timber, 25, beech, birch and maple; acres tillable, 175. Fruit, 50 apple and 10 pear trees. Best adapted to dairying, grass, potatoes, corn, oats and buckwheat. Fences, wire, in good condition. House, 30x45, needs some repair. Three barns, one 30x60, with basement, in good condition; one, 30x40; one, 20x30. Watered, house, by well; barns, by springs and brooks. Occupied by tenant. Rented for one year with privilege of selling. This farm is on the main road from Sherburne to New Berlin, with R. D. and telephone line. A first-class dairy farm, very productive. Reason for selling, age of owner and difficulty of obtaining help. Price, \$2,500. Terms, \$1,000 down, balance on bond and mortgage, or on interest and \$150 a year on principal. Address E. C. Bryant, Sherburne, N. Y., R. D. 1.

No. 180 — Farm of 145 acres; located 9 miles from New Berlin P. O., R. D. 3; 3 miles from railway station at Sweet's, on line of Unadilla Valley R. R.; ¾ mile from school; 2½ miles from Freewell Baptist church; 5 miles from butter factory, cheese factory and milk station;

9 miles from condensing plant. Highways, good. Nearest villages, New Berlin, population 1,114, 9 miles distant; Sherburne, population 1,200, 11 miles distant; reached by highway. Surface of farm, part rolling, part level, part hilly. Altitude, 1,600 feet. Soil, gravel and loam. Acres in meadow, 40; in natural pasture, 60; in timber, 45, basswood ash, maple and beech; acres tillable, 80. Fruit, 5 acres of apples, 5 kinds of pears. Best adapted to dairying. Fences, stone wall, rail and wire, in good condition. House, 84x24, well painted, slate roof, 2 stories, observatory on top, 20 rooms, large cellar, furnace and a conservatory, in good condition. Barn, 30x40; barn, 20x30; shed, 40x20; crib, 12x18; hen house, 12x24; 2 shops. Watered, house by well; barn, by well, lead pipe to trough; fields, by 3 springs and brook. Three miles from Unadilla river. Occupied by tenant. Reason for selling, to settle an estate. Price, \$3,000. Terms, \$1,500 cash, balance on mortgage. Address F. J. Tuttle, Norwich, N. Y.

* No. 181—Farm of 130 acres; located 5 miles from Sherburne P. O., R. D. No. 2 and railway station, on line of D. L. & W. R. R., $\frac{1}{2}$ mile from school, 5 miles from churches and milk station, 100 rods from cheese factory. Highways, good. Nearest large village, Norwich, 20 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, gravelly loam. Acres in natural pasture, 40; in timber, 40, beech, maple and hemlock. Fruit, apples. Best adapted to cabbage, potatoes, corn and oats. Fences, wire. House, 2 stories, good condition. Outbuildings, barn, 36x95; hog house, 14x20; hen house, 12x16, fair condition. Watered by well and brook. Price, \$3,000. Terms reasonable. Address Geo. L. Sholes, agent, Sherburne, N. Y.

TOWN OF COVENTRY

Population 764

No. 182—Farm of 160 acres; located 1 mile from Coventryville P. O., R. D. No. 4, 4 miles from railroad station, on line of D. L. & W. R. R., 1 mile from school, 1 mile from Protestant church. Nearest large village, Norwich, 16 miles distant, reached by rail and highway. Occupied by owner. Surface of

farm, slightly rolling. Soil, good clay loam. Acres in meadow, 40; in natural pasture, 75; in timber, 25, pine, hemlock, beech and maple. Acres tillable, 100. Fruit, apples, pears and plums. Best adapted to corn, potatoes, oats, buckwheat, etc. Fences, wire and rail, good condition. House, 2 stories, 14 rooms, upright, 28x40, wing 18x28; telephone, hot and cold water, bath. Outbuildings, barn, 36x60; basement, blacksmith shop and tool house combined; corn house, 18x24, and milk house, all in fine condition. Watered, house by drilled well; water in barn; fields, by springs and creek. Reason for selling, owner has another farm. Price, \$4,000. Terms, \$1,000 cash, balance on bond and mortgage at 5%. Address Elmer E. Shapley, Bainbridge, N. Y., R. D. No. 4.

* No. 183—Farm of 109 acres; located $1\frac{1}{2}$ miles from Coventryville P. O., R. D. No. 4, 4 miles from railway station at Coventry, on line of D. L. & W. R. R., $1\frac{1}{2}$ miles from school, church, butter factory and cheese factory. Highways, somewhat hilly, but in good condition. Surface of farm slightly rolling. Altitude about 1,600 ft. Soil, clay loam. Acres in meadow, 50; in natural pasture, 50; in timber, 10, maple, beech and chestnut. Acres tillable, 75. Fruit, apples, pears, plums and grapes. Best adapted to corn, oats, potatoes, buckwheat, hay, etc. Fences in good condition. House, 12 rooms, fair condition. Outbuildings, barn, 30x50, good condition, also granary, hen house and hog pen. Watered by well and spring. Occupied by owner. Price, \$2,000. Terms, \$700 cash, balance on mortgage at 5%. Address C. O. Gale, agent, Oxford, N. Y.

* No. 184—Farm of 50 acres; located $\frac{1}{2}$ mile from Coventryville P. O., R. D. No. 3, 4 miles from railway station at Coventry, on line of D. L. & W. R. R., $\frac{1}{2}$ mile from school and butter factory. Highways, good. Surface of farm, rolling. Altitude, 1,600 ft. Soil, loam. Acres in meadow, 30; in natural pasture, 20; in timber, 1, chestnut. Acres tillable, 30. Fruit, apples and pears. Best adapted to corn, oats, potatoes and vegetables. Fences, wire, good. House, 2 stories, 8 rooms, good condition. Outbuildings, barn, 28x40, good

* Indicates farm is in hands of agent or real estate dealer.

condition, also woodhouse and granary. Watered, house and barn by running water; fields, by brook and spring. Occupied by owner. Reason for selling, owner wants to get a larger farm. Price, \$1,700. Terms, \$450 cash, balance on time. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF GERMAN

Population 371

No. 185 — Farm of 218 acres; located 3 miles from German P. O.; 6 miles from railway station, on line of D. & W. R. R.; $\frac{1}{2}$ mile from school; 3 miles from Methodist church; $\frac{3}{4}$ mile from butter factory and cheese factory; $4\frac{1}{2}$ miles from milk station; 9 miles from condensing plant. Nearest city, Binghamton, population, 48,443, 26 miles distant. Highways, hilly but good. Soil, clay loam. Acres in meadow, 50; in natural pasture, 75; in timber, 88, maple, hemlock, ash, cherry, basswood, beech; acres tillable, 100. Fruit, 100 apple, 3 pear trees. Best adapted to potatoes, corn and oats. Fences, stone wall, rail and wire, in good condition. House, 30x40, 10 rooms and basement, in good condition. Barn, 30x40; basement barn, 30x50; basement horse barn, 26x36; granary; hen house; hog house. Watered, house and barn by springs; fields, by springs and brook. Five miles from Silver Lake, 6 miles from Echo Lake, 4 miles from Otselee River. A good dairy and stock farm, keeps 24 cows and 3 horses. Occupied by tenant. Reason for selling, advanced age of owner. Would sell farm and reserve timber for \$3,000. Terms, \$1,000 down and \$200 and interest annually at 5%, or \$4,000 for farm and timber, or \$6,000 for farm stock, tools, etc. Terms, \$2,000 down, balance on time. Address Uriah Loomis, Smithville Flats, N. Y.

*No. 186 — Farm of 105 acres; located 3 miles from McDonough P. O.; 10 miles from railway station at Greene, on line of D. & W. R. R.; 1 mile from school; 3 miles from Methodist Episcopal, Baptist and Episcopal churches; 3 miles from butter factory. Highways, somewhat hilly but good. Nearest large village, Greene, population, 1,300, 10 miles distant, reached by highway. Surface, level. Soil, clay loam. Acres in meadow, 30; in natural pasture, 40; in timber, 35,

maple, beech and hemlock; acres tillable, 30. Best adapted to hay, grain, potatoes, vegetables, pasturage. Fences, wire, in good condition. House, $1\frac{1}{2}$ stories, 6 rooms, comfortable. Barn, 30x40; horse barn; hen house; corn house; sugar house; all in good condition. House and barn watered by spring; fields, by spring and creek. Sugar bush is a source of income. Occupied by owner. Reason for selling, owner wishes larger farm. Price, \$1,400. Terms, \$800 cash, balance on mortgage. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF GUILFORD

Population 2,013

No. 187 — Farm of 114 acres; 4 miles from Bainbridge P. O. and railway station, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; 4 miles from 5 churches; R. D. 3 from Bainbridge. Good roads. Four different milk stations and shipping stations within 2 to 4 miles of farm. Nearest village, Bainbridge, population, 1,200, distant 4 miles, reached by highway. Surface of farm, rolling. Soil, good. Acres in meadow, 40; in natural pasture, 54; in timber, 20, hemlock, pine, chestnut and hard wood; acres tillable, 94. Fruit, 5 plum, 4 pear, 35 apple trees, 2 grapevines, also currants and berries. Adapted to all crops. Fences, wire and rail, in good condition. House, 20x26, and ell, 18x36, 2 stories, good condition, new. Barn 32x60, leanto, 14x68, granary, hen house, shop. Watered, house, by running water and 2 wells; barns, by running water; fields, by brook and streams. Susquehanna River, 4 miles distant. Reason for selling, wife is dead and son in high school. Owner will sell stock, team and tools if wanted, at a bargain. Owner will meet prospective buyers at Bainbridge. Price, \$3,000. Terms, \$2,050 down, balance on mortgage. Name and address of owner, O. L. Yale, Bainbridge, N. Y., R. D. 3.

*No. 188 — Farm of 120 acres; located 2 miles from Guilford P. O. and railway station, on line of O. & W. Ry.; $\frac{1}{2}$ mile from school; 2 miles from Protestant churches, butter factory and milk station. Nearest large village, Oxford, population about 1,600, 6 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 1,550. Soil, good productive loam. Acres in meadow,

* Indicates farm is in hands of agent or real estate dealer.



FIG. 110.— HOUSE ON FARM NO. 193, TOWN OF McDONOUGH, CHENANGO COUNTY.



FIG. 111.— HOUSE ON FARM NO. 183, TOWN OF COVENTRY, CHENANGO COUNTY.



FIG. 112.— HOUSE ON FARM NO. 201, TOWN OF NORTH NORWICH, CHENANGO COUNTY.

50; in natural pasture, 60; in timber, 10, 250 sugar maples. Acres tillable, 50. Fruit, apples, pears and raspberries for home use. Best adapted to hay and general farm crops. Fences, wire, board and stone. House, 1½ stories, 10 rooms. Barn in fair condition. Watered, house by well; barn, by creek; fields, by springs and creek. Occupied by owner. Reason for selling, owner lives in the West and is unable to look after farm. Price, \$3,300. Terms, \$2,300 down, balance on easy terms at 5%. This farm is 1½ miles from Guilford Lake resort. Address C. O. Gale, agent, Oxford N. Y.

No. 189 — Farm of 175 acres; located 3½ miles from Guilford P. O., R. D. 1; 4½ miles from railroad station at Bainbridge; 3½ miles from railway station at Guilford, on line of O. & W. R. R.; 3½ miles from churches and milk station, ½ mile from school. Highways, in good condition. Nearest large village, Norwich, 13½ miles distant, reached by rail and highway. Surface of farm, somewhat hilly. Altitude, 1,275 feet. Soil, loam and hard pan subsoil. Acres in meadow, 30; in natural pasture, 120; in timber, 25, hard and soft wood. Acres tillable, 40. Fruit, apples, pears and plums. Best adapted to corn, oats, buckwheat, millet and potatoes. Fences, barbed wire and rail, good condition. House, 36x30, fair condition. Outbuildings, barn, 28x76, with basement; horse barn, 26x36; shop, 24x28; hen house and granary. Watered, house, by running water; barns by running water; fields, by creek and springs. Occupied by owner. Reason for selling, owner cannot attend to farm. Price, \$3,800. Terms, \$500 down and \$200 per year after first year. Address Merwin I. Yale, Guilford, N. Y.

*No. 190 — Farm of 62 acres; located 2 miles from Guilford P. O., R. D. 1, and railway station, on line of O. & W. R. R.; ½ mile from school; 2 miles from Protestant churches, butter factory and milk station. Highways, in good condition. Nearest large village, Oxford, 4 miles distant, reached by highway. Surface of farm, smooth and level. Altitude, about 1,700 feet. Soil, rich loam. Acres in meadow, 25; in natural pasture, 27. Acres tillable, 60. Fruit, apples and pears. Best adapted to corn, oats, potatoes, etc. Fences, mostly wire,

good condition. House, 1½ stories, 8 rooms, needs slight repairs. Barn, 30x40, fair condition. Watered, house, by well; barns and fields, by spring. This farm is 1 mile from North Lake and 2 miles from Guilford Lake. Occupied by owner. Reason for selling, owner has another farm. Price, \$1,550. Terms, \$450 cash, balance on time at 5% interest. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF McDONOUGH
Population 813

*No. 191 — Farm of 100 acres; located 2 miles from E. McDonough P. O.; 7½ miles from railway station at Oxford, on line of D., L. & W. R. R.; ½ mile from school; 2 miles from church; 3½ miles from butter factory. Highways, good. Surface of farm, nearly level. Altitude, about 1,550 feet. Soil, clay loam. Acres in meadow, 40; in natural pasture, 50; in timber, 10, mostly hard wood; acres tillable, 40. Fruit, 25 apple trees. Best adapted to hay, corn, oats, potatoes and buckwheat. Fences, wire, fair condition. House, 1½ stories, 5 rooms, poor condition. Outbuildings, barn, 28x35; horse barn, 25x30, poor condition. Watered, house, by well; barns and fields, by spring. Unoccupied. Reason for selling, owner lives too far away to attend to farm. Price, \$1,000. Terms, \$500 cash, balance on mortgage at 5 per cent. Address C. O. Gale, agent, Oxford, N. Y.

*No. 192 — Farm of 25 acres; located 2½ miles from East McDonough P. O.; 8 miles from railway station at Oxford, on line of D., L. & W. R. R.; ¼ mile from school; 2½ miles from Methodist church; 3 miles from butter factory and cheese factory. Highways, good. Surface of farm, level. Altitude, 1,650 feet. Soil, clay loam. Acres in meadow, 10; in natural pasture, 10; in timber, 5, maple and beech. Acres tillable, 10. Fruit, 6 apple trees. Best adapted to corn, oats, potatoes, hay, etc. Fences, in fair condition. House, 1½ stories, 5 rooms. Outbuildings, barn, 26x36, fair condition, and hen house. Watered, house, by well; barns and fields, by spring. This farm is ½ mile from Round Lake. Occupied by owner. Reason for selling, owner a widow. Price, \$500. Terms, \$250 cash, balance on easy terms. Address C. O. Gale, agent, Oxford, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

*No. 193 — Farm of 284 acres; located $1\frac{1}{2}$ miles from East McDonough P. O., star Route; 7 miles from railway station at Oxford, on line of D., L. & W. and O. & W. R. R.; 1 mile from school and Methodist church; 4 miles from butter factory; 7 miles from milk station. Highways, State road. Surface of farm, level. Altitude, 1,600 feet. Soil, loam. Acres in meadow, 80; in natural pasture, 130; in timber, 75, maple, beech and hemlock. Acres tillable, 150. Fruit, apples, pears and grapes. Best adapted to hay, grain and potatoes. Fences, wire, stone and rail. House, $1\frac{1}{2}$ stories, 7 rooms, good condition. Outbuildings, barn, 26x37; barn, 26x36; barn, 24x50, in fair condition. Watered, house, by well; barns and fields, by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,200. Terms, \$1,000 cash, balance on time at 5% interest. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF NEW BERLIN

Population 2,328

No. 194 — Farm of 160 acres; $\frac{3}{4}$ mile from New Berlin, R. D. Suitable for dairying and stock raising. Five acres of timber; balance meadow and pasture. Watered by springs, brook and Unadilla River. One-half mile from Borden's condensery. State road being constructed. Houses, one 3 stories, slate roof, 20x60; the other 24x30, $1\frac{1}{2}$ stories, both in good repair. Barns, 30x60 and 30x40, with basement, in good condition. Fences, good. Have sold \$3,300 worth of milk in one year. Price, \$15,000. Terms, one-half cash, balance on time; will make a good investment at price named. Address Crandall Bros., New Berlin, N. Y. Owner will rent on shares.

*No. 195 — Farm of 150 acres; located 4 miles from New Berlin P. O. and railway station, on line of O. & W. R. R.; 15 rods from school; 4 miles from churches, milk station and milk condensing plant. Nearest large village, Norwich, reached by highway. Surface of farm, rolling. Acres in natural pasture, 70; in timber, 25, maple, beech, ash and basswood. Fruit, apples and pears. Best adapted to cabbage, potatoes, corn and oats. Fences, wire and rail. House, $1\frac{1}{2}$ stories, 10 rooms. Outbuildings, barn, 30x66; barn, 28x30, and granary, fair

condition. House and barns have running water, fields watered by springs. Price, \$3,500. Terms, \$1,700 cash, balance in reasonable time at 5% interest. Address Geo. L. Sholes, agent, Sherburne, N. Y.

TOWN OF NORWICH

Population 8,560

No. 196 — Farm of 345 acres; 6 miles from Norwich, on line of N. Y., O. & W. R. R.; also D., L. & W. R. R. Twenty-five acres timber, balance tillable. Apples and other fruit. Altitude, 600 feet. Twelve-room house. Cow barn, 96 feet long. Wagon house, hop house and four hay barns. Watered by springs. Fences, wire and rail. There is timber enough on farm to nearly pay for it, estimated about 200,000 feet of basswood lumber, also maple and beech. Condensing plant located convenient to farm or milk can be shipped to New York. New silo, 14x32. A first-class farm in every respect. This is a fine dairy farm. Fifty cows go with farm is desired. Price, \$28 per acre. Terms, easy. Address Margaret A. Wood, 31 Elm street, Norwich, N. Y.

*No. 197 — Place of 1 acre; located $2\frac{1}{2}$ miles from Norwich P. O. and railway station, on line of N. Y., O. & W. and D., L. & W. R. R.; 20 rods from school; $2\frac{1}{2}$ miles from city schools and churches; 2 miles from milk station; $2\frac{1}{2}$ miles from milk condensing plant. Highways, in good condition. Nearest large village, Norwich, $2\frac{1}{2}$ miles distant. Altitude, 800 feet. Surface, level. Soil, stony and sandy loam. All tillable. A few berries. Fences, wire. Small 5-room house, good condition. Small barn, good condition. Watered by brook and spring. Occupied by owner. Price, \$500. Address R. A. Borland, agent, 217 Broad street, Norwich, N. Y.

*No. 198 — Farm of 30 acres; located 1 mile from Norwich P. O. and railway station, on line of N. Y., O. & W. and D., L. & W. railways; 1 mile from city schools, churches, butter factory, milk station and milk condensing plant. Highways, nearly all State road. Surface of farm, rolling. Altitude, about 850 feet. Soil, gravelly loam. Acres in meadow, $5\frac{1}{2}$. All tillable. Fruit, 8 acres strawberries, 5 acres red and black

* Indicates farm is in hands of agent or real estate dealer.

raspberries, 4 acres new set strawberries, 2 acres blackberries, 300 apple, 100 pear and 100 cherry trees. Fences, wire, good. Outbuildings, old barn and berry sheds. No house. Watered by pump and two springs. Farm is worked by owner. Reason for selling, owner has other business. Price, \$4,200. Terms, \$2,700 cash. Address R. A. Borland, agent, 217 Broad street, Norwich, N. Y.

No. 199 — Farm of 212 acres; located $2\frac{1}{2}$ miles from Sherburne P. O. and railway station, on line of D., L. & W. R. R.; $2\frac{1}{2}$ miles from Galena railway station, on line of O. & W. and D., L. & W. railways. Soil, gravel loam mixed, mostly river flats. Acres in meadow and pasture, 180; acres in timber, 20; good blue stone quarry on farm. House, $1\frac{1}{2}$ stories. Watered by good well. Milk collected by Borden's wagon. Outbuildings, large barn, cow stable with concrete floor and ice house. A never-failing spring runs to milk house; large vat for watering stock in barn. Material on farm for a frame, stone or cement building. R. D. passes farm. Telephone line in front and back of house. Direct road to Binghamton from Utica passes house. Chenango river at foot of slope on which house stands. One old and one young orchard. State road soon to be finished. It is expected that trolley line will soon pass farm. Price, \$8,500, including tools. Terms, \$2,000 down, balance on mortgage at 5% interest. Address Mrs. Adelia Haxton Marquis, Norwich, N. Y. Owner will rent with option to buy.

TOWN OF NORTH NORWICH.

Population 691

No. 200 — Farm of 160 acres; located 5 miles from Norwich P. O., R. D. 3 and railway station, on line of D., L. & W. and N. Y., O. & W. railways; $\frac{1}{2}$ mile from school and churches; $3\frac{1}{2}$ miles from milk station; $4\frac{1}{2}$ miles from milk condensing plant. Highways, State road. Surface of farm, sloping and level. Altitude, about 900 feet. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 70; in timber, 20, mostly first growth hemlock, chestnut and maple. Acres tillable, 70. Fruit, apples and pears. Best adapted to oats, corn, potatoes, hay, etc. Fences, wire,

good. House, 11 rooms, fair condition. Outbuildings, good basement barn, 30x66, with 27 stanchions, 4 single and 1 box stall; basement barn in field with 16 stanchions; also other buildings. Watered by well and streams. Trout brook runs through farm. Occupied by owner. Reason for selling, ill health of wife of owner. Price, \$6,500. Terms, \$600 or more down. Address R. A. Borland, agent, 217 Broad street, Norwich, N. Y.

*No. 201 — Farm of 91 $\frac{1}{2}$ acres; located $2\frac{1}{2}$ miles from Sherburne P. O., R. D. 3 and railway station, on line of D., L. & W. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from churches and milk station. Highways, good. Nearest large village, Norwich, 10 miles distant, reached by highway. Surface of farm, rolling. Soil, gravel loam. Acres in natural pasture, 30; in timber, 10, maple, ash, basswood and hemlock. Fruit, apples, pears, cherries, plums and small fruits. Best adapted to cabbage, potatoes, corn and oats. Fences, wire. House, 7 rooms, good condition. Outbuildings, barn, 25x40; ice house, milk house and hen house, good condition. Watered, house by well; barns by running water; fields by springs. Occupied by owner. Price, \$2,000. Terms, \$1,000 cash, balance on easy terms at 5% interest. Address Geo. L. Sholes, agent, Sherburne, N. Y.

TOWN OF OTSELIC

Population 1,104

No. 202 — Farm of 145 acres; situated 1 mile from Otselic P. O. and 7 miles from Georgetown railway station, on line of W. S. R. R. Highways in good condition. Loam soil. Acres in meadow, 30; tillable, 75; natural pasture, 70; timber, about 30, beech, birch, maple, cherry, basswood, elm, hemlock and ash, medium size. Fruit, about 50 apple trees, 2 pear trees. Best adapted to grass, oats, buckwheat, potatoes and corn. Fences, barbed wire, in good condition. House, 24x30, with wing, 20x36, nearly new, good condition. Barns, basement barn, 34x48; horse barn, 24x36; hog house, 20x20; hay barn, 26x36; hen house, 12x50; all in good condition. Watered by well, cistern, springs and streams. Price, \$2,000.

* Indicates farm is in hands of agent or real estate dealer.

Terms, \$500 cash, balance on mortgage. Name and address of owner, W. H. Stradling, Otselic, N. Y.

TOWN OF OXFORD
Population 3,014

No. 203—Farm of 140 acres; 5½ miles from Oxford, R. D. Soil, clay loam. Ten acres timber; balance meadow and pasture. Land under good cultivation. Well watered and in good condition. One and one-half story house, 27x29, with wing, 24x30, in good condition. Barns, large and in good condition. Price, \$5,000. Terms, ½ cash. Address C. H. Smith, Oxford, N. Y., R. D. 3, Box 521.

*No. 204—Farm of 270 acres; located on Oxford R. D.; 7 miles from railway station at Oxford, on line of D., L. & W. and O. & W. R. R.; 1 mile from school; 3 miles from Methodist, Episcopal and Baptist churches; 3 miles from butter factory; 7 miles from milk station. Highways, good. Nearest large village, Oxford, population 1,600, 7 miles distant, reached by highway. Surface of farm, part level, part rolling. Soil, loam. Acres in meadow, 70; in natural pasture, 120; in timber, 80, hemlock and hardwood; acres tillable, 75. Fruit, 35 apple, 2 pear, 3 plum trees, grapevine. Best adapted to hay, grain and potatoes. Fences, wire, stone and board. House, 2 stories, 12 rooms, cellar flagged, in good condition. Basement barn, 30x40, nearly new; corn house, 20x34; hen house, 10x20; hog pen, 18x28; smoke house. Watered, house and barn, by running water. Three-fourths mile from Ludlow Lake, excellent fishing and boating. This is a good productive farm, pleasant view. Occupied by tenant. Reason for selling, owner has business elsewhere. Price, \$19 per acre. Terms, \$2,500 cash, balance on time. Address C. O. Gale, agent, Oxford, N. Y.

No. 205—Farm of 90 acres; located 5½ miles from Bainbridge P. O., R. D. 4; 5½ miles from railway station at Bainbridge, on line of D. & H. R. R.; ¾ mile from school; 1 mile from Methodist Episcopal church; 1½ miles from Baptist church; 4 miles from butter factory and cheese factory; 5½ miles from milk station. Highways, good.

Nearest village, Bainbridge, 5½ miles distant, reached by highway. Surface of farm, rolling. Soil, good. Acres in meadow, 40; in natural pasture, 20; in timber, 30, oak, chestnut, pine, hemlock, good quality; acres tillable, 50. Fruit, 25 apple, 6 plum, 8 pear and 3 crab apple trees. Best adapted to potatoes, corn, alfalfa and oats. Fences, mostly wire, some rail, in good condition. House, 20x40, 8 rooms, in fair condition. Hog house, 18x20; hen house, 12x14; wood house, 12x14, all in fair condition. Barns burned. Watered, house, by good spring; buildings, by running water in yard; fields, by running water in pasture. One mile from Bocket Lake, 5½ miles from Susquehanna River. Unoccupied. Timber is in fine growing condition, 1 mile from sawmill, goods roads to same. Reason for selling, poor health of owner. Price, \$2,500. Terms, \$2,000 cash, balance on easy terms. Address W. E. Ingersoll, Bainbridge, N. Y., R. D. 1.

No. 206—Farm of 233 acres; located 6 miles from Oxford P. O., R. D.; 4½ miles from railway station at Guilford, on line of O. & W. R. R.; 1 mile from school; 1½ miles from churches; 4 miles from butter factory and cheese factory; 6 miles from condensing plant. Highways, good. Nearest large village, Oxford, population 1,600, 6 miles distant, reached by highway. Surface of farm, part level and part rolling. Soil, fertile. Acres in meadow, 50; in natural pasture, 123; in timber, 60, maple, hemlock, chestnut and oak; acres tillable, 173. Fruit, 80 apple, 9 pear, 8 plum, 6 cherry trees, also currants. Best adapted to corn, oats, potatoes, buckwheat and grass. Fences, rail and wire, in good condition. House, 36x26, extension, 34x26, woodshed, 20x30, 15 rooms, good cellar. Barn with basement, 40x70, horse barn attached; barn, 20x40; hen house, hog house, ice house, silo, milk house, with cement floor and vat, 10x16. Watered, house and barn by running water; fields by lake, brook and springs. Bocket Lake adjoins the farm, also a grove. Occupied by owner. Reason for selling, advanced age of owner. Price, \$30 an acre. Terms ½ cash, balance on mortgage. Address Edward T. Loomis, Bainbridge, N. Y., R. D. 4.

* Indicates farm is in hands of agent or real estate dealer.

*No. 207 — Farm of 39 acres; located 1 mile from Oxford P. O., R. D.; $1\frac{1}{2}$ miles from railway station at Oxford, on line of D., L. & W. R. R.; 1 mile from school, and Congregational, Methodist, Baptist, Catholic and Episcopal churches; $1\frac{1}{4}$ miles from milk station. State road. Nearest large village, Oxford, population 1,600, 1 mile distant, reached by highway. Surface, part level, part slightly rolling. Soil, sandy loam. Acres in meadow, 20; in natural pasture, 18; in timber, 1; acres tillable, 20. Fruit, 25 apple trees in bearing, 2 pear trees, 2 plum trees. Best adapted to corn, potatoes, oats, vegetables, hay and pasturage. Fences, board, wire and stone walls. House, $1\frac{1}{2}$ stories, 7 rooms, cellar, in good condition. Three small barns, in good condition. Watered, house and barn, by running water; fields, by springs. One mile from Chenango River. There are 25 sugar maple trees on this farm. This farm is a fine poultry and truck farm, pleasantly located, good view. Occupied by owner. Reason for selling, advanced age of owner. Price, \$2,500. Terms, \$1,000 cash, balance on time. Address C. O. Gale, agent, Oxford, N. Y.

*No. 208 — Farm of $183\frac{1}{2}$ acres; located $3\frac{1}{2}$ miles from Oxford, on R. D.; $3\frac{1}{2}$ miles from railway station at Oxford, on line of D., L. & W. and O. & W. R. R.; $\frac{1}{2}$ mile from school; $3\frac{1}{2}$ miles from churches of all denominations, butter factory and milk station. Highways, good. Nearest large village, Oxford, population 1,600, $3\frac{1}{2}$ miles distant, reached by highway. Surface of farm, rolling. Soil, sandy loam, fertile. Acres in meadow, 50; in natural pasture, 100; in timber, 33, oak, hemlock, chestnut. Fruit, enough apples for home use. Best adapted to grain, potatoes, hay, pasturage; excellent dairy farm. Fences, mostly wire, in good condition. House, 2 stories, 14 rooms, painted, cellar flagged, in good condition. Ample barn room for stock and hay, hen house and granary. Watered, house and barn, by running water; fields, by springs. One mile from Chenango River. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$5,200. Terms, \$2,000 cash, balance for term of years. Address C. O. Gale, agent, Oxford, N. Y.

*No. 209 — Farm of 204 acres; located $\frac{1}{2}$ mile from Tyner P. O., R. D. 1, from

Oxford; $3\frac{1}{2}$ miles from railway station at Oxford, on line of D., L. & W. R. R.; $\frac{1}{2}$ mile from school, churches, butter factory and cheese factory; $3\frac{1}{2}$ miles from milk station. Highways, somewhat hilly, but good. Surface of farm, slightly rolling. Altitude, about 1,500 feet. Soil, clay loam. Acres in meadow, 75; in natural pasture, 85; in timber, 50. Acres tillable, 75. Fruit, 60 apple, 5 pear, 1 plum tree; also one grape vine. Best adapted to corn, potatoes, oats and hay. Fences, wire and stone, good condition. House, 2 stories, 16 rooms, large enough for two families. Outbuildings, fine basement barn, 36x90, nearly new; carriage house, granary, etc. Watered, house, by well; barn, by spring; fields, by spring. Occupied by owner. Reason for selling, ill health of owner. Price, \$6,000. Terms, \$2,000 cash, balance on easy terms at 5%. Address C. O. Gale, agent, Oxford, N. Y.

*No. 210 — Farm of $5\frac{1}{2}$ acres; located $\frac{1}{2}$ mile from village of Oxford, R. D. 1; $\frac{1}{4}$ mile from railway station at Oxford, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school and churches; 1 mile from butter factory and milk station. Highways, good. Surface of farm, rolling. Altitude, about 1,500 feet. Soil, sandy loam. Acres in meadow, 3; in natural pasture, 2. Acres tillable, 4. Fruit, 30 apple, 10 plum trees. Six butternut trees in bearing. Best adapted to truck gardening and poultry raising. Fences, stone and wire. House, $1\frac{1}{2}$ stories, 9 rooms, good condition. Outbuildings, barn, 20x30, two good hen houses, large enough for 500 hens. Watered, house and barn, by running water; fields, by springs. Chenango River is $\frac{1}{4}$ mile from farm. Occupied by owner. Reason for selling, advanced age of owner. Price, \$1,700. Terms, \$750 cash, balance on easy terms. Address C. O. Gale, agent, Oxford, N. Y.

No. 211 — Farm of 125 acres; located $4\frac{1}{2}$ miles from Oxford P. O., R. D. 3, 2 miles from railway station at Coventry, on line of D., L. & W. R. R.; 1 mile from school and Baptist church; 5 miles from butter factory and cheese factory; $4\frac{1}{2}$ miles from milk station. Highways, somewhat hilly, but good. Surface of farm, partly level and partly hilly. Altitude, about 1,500 feet. Soil, clay. Acres in meadow, 50; in natural pasture, 55; in timber, 20, hemlock, beech and maple. Acres tillable, 50. Fruit, apples,

cherries, plums, pears and peaches. Best adapted to corn, oats, potatoes, wheat and buckwheat. Fences, mostly wire, fair condition. House, 12 rooms, fair condition. Outbuildings, barn, 48x54, fair condition, with basement for 40 cows and 4 horses; also large corn house. Watered, house and barn, by well; fields, by spring and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500. Terms, \$1,500 down. Address S. N. Roys, Oxford, N. Y.

*No. 212 — Farm of 27 acres; located 3 miles from Guilford P. O., R. D. 4, and railway station, on line of O. & W. R. R.; ½ mile from school; 3 miles from Protestant churches, butter factory and milk station. Highways, good. Surface of farm, level. Altitude, about 1,700 feet. Acres in meadow, 13; in natural pasture, 14. Acres tillable, 15. Fruit, apples and pears. Adapted to general farm crops. Fences, mostly wire. House, 1½ stories, 7 rooms, good condition. Outbuildings, basement barn, 30x40, good condition; also hen house. Watered, house, by well; barns and fields, by springs. This farm is 1 mile to North Pond and 2½ miles to Guilford Lake. Occupied by owner. Reason for selling, owner a widow. Price, \$1,350. Terms, \$550 cash, balance in small payments. Address C. O. Gale, agent, Oxford, N. Y.

*No. 213 — Farm of 150 acres; located 4½ miles from Guilford P. O., R. D. 1, and railway station, on line of O. & W. R. R.; ½ mile from school; 2 miles from churches; 4½ miles from milk station. Highways, good. Nearest large village, Bainbridge, 6 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 1,600 feet. Soil, red loam. Acres in meadow, 40; in natural pasture, 65; in timber, 45, chestnut, maple and hemlock. Acres tillable, 50. Fruit, 40 apple trees. Best adapted to corn, potatoes, oats and buckwheat. Fences, wire and rail. House, 2 stories, 10 rooms, fair condition. Outbuildings, barn 30x40, granary and hen house. Watered, house, by well; barn and fields, by spring. Occupied by tenant. Reason for selling, to close an estate. Price, \$2,000. Terms, \$500 cash, balance at 5% interest. Address C. O. Gale, agent, Oxford, N. Y.

*No. 214 — Farm of 92 acres; located 2½ miles from Guilford P. O., R. D. 4,

and railway station, on line of O. & W. R. R.; ½ mile from school; 2½ miles from Protestant churches, butter factory and milk station. Highways, good. Surface of farm, level. Nearest large village, Oxford, 4 miles distant, reached by highway. Altitude, 1,650 feet. Soil, clay loam. Acres in meadow, 35; in natural pasture, 52; in timber, 5, maple, beech and chestnut. Acres tillable, 40. Fruit, apples and cherries. Best adapted to general farming. Fences wire. House, 1½ stories, 10 rooms, needs some repairs. Outbuildings, barn, 26x36, good condition. Watered, house, by well; barn, by spring; fields, by spring and brook. Occupied by owner. Reason for selling, owner has other business. Price, \$1,550. Terms, \$450 cash, balance easy. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF PRESTON

Population 649

No. 215 — Farm of 224 acres; 4 miles from post-office and railway station; 1 mile from school and church; R. D. 2 from Oxford. Highways, always open. Nearest village, Oxford, population 1,600, distant 4 miles, reached by highway. Occupied by owner. Surface of farm, slightly hilly. Soil, very fertile and good. Acres in meadow, 80; in pasture, 80; in timber, 64, maple sugar bush, beech and pine; acres tillable, 140. Fruit, 20 or 30 apple trees, mostly Baldwins. Best adapted to grass, corn, oats and potatoes. Fences, stone wall and wire. House, 1½ stories, with ell, in good condition. Barns, 2, large, in good condition, 1 nearly new. Watered, house and barns, running water. New silo. Milk from this farm is taken to the Borden plant at Oxford. Price, \$21 per acre. Name and address of owner, Charles S. Roe, Oxford, N. Y., R. D. 2.

*No. 216 — Farm of 184 acres; located 2½ miles from Oxford P. O.; 2½ miles from railway station at Oxford, on line of D., L. & W. R. R.; ½ mile from school; 2½ miles from Methodist Episcopal, Episcopal, Baptist, Congregational and Catholic churches; 2½ miles from milk station. Highways, good, mostly State roads. Nearest large village, Oxford, population 1,600, distant 2½ miles, reached by State road. Surface of farm, rolling, flat meadows. Soil, rich, gravelly loam. Acres in meadow, 50; in natural pasture, 85; in timber, 50,

* Indicates farm is in hands of agent or real estate dealer.



FIG. 113.—HOUSE ON FARM NO. 209, TOWN OF OXFORD, CHENANGO COUNTY.



FIG. 114.—HOUSE ON FARM NO. 210, TOWN OF OXFORD, CHENANGO COUNTY.



FIG. 115.—HOUSE ON FARM NO. 227, TOWN OF SMITHVILLE, CHENANGO COUNTY.

maple, beech, birch; acres tillable, 50. Fruit, apples enough for home use. Best adapted to corn, potatoes, oats, hay, grain and buckwheat. Fences, wire and stone. House, 2 stories, 12 rooms, painted, in good condition. Ample barn room, in good repair, horse barn, hog pen, hen house, corn house. Watered, house and barn, by running water; fields, by spring and creek; 2½ miles from Chenango River. This is a good dairy farm, well watered by springs. Reason for selling, owner has other business. Price, \$5,000. Terms, \$1,400 cash, balance on time. Address C. O. Gale, agent, Oxford, N. Y.

*No. 217 — Farm of 210 acres; located 3 miles from Oxford P. O.; 3 miles from railway station at Oxford, on line of D., L. & W. R. R.; 1¼ miles from school; 3 miles from Methodist, Baptist, Episcopal and Congregational churches; 3 miles from milk station. Highways, some hills, but good. Nearest large village, Oxford, population 1,600, 3 miles distant, reached by highway. Surface, rolling; meadows smooth and easily tilled. Soil, clay loam. Acres in meadow, 50; in natural pasture, 110; in timber, 50, mostly hard wood, maple and beech; acres tillable, 110. Fruit, 25 apple trees, 3 pear trees. Best adapted to potatoes, oats, corn and buckwheat. Fences, wire and stone, in good condition. House, 2 stories, 10 rooms, nearly new. Basement barn, 36x40, in good condition; hog house; hen house; ice house; shed for sheep, 14x50. Watered, house and barn, by well; fields, by springs and creek. Fine locust grove about the house; a healthful location and pleasant. Farming tools included. Occupied by tenant. Reason for selling, owner has other business. Price, \$4,400. Terms, \$1,400 cash, balance on mortgage. Address C. O. Gale, agent, Oxford, N. Y.

*No. 218 — Farm of 10 acres; located 2½ miles from Oxford P. O., R. D. 2; 2½ miles from railway station at Oxford, on line of D., L. & W. R. R.; ½ mile from school; 2 miles from churches; 2½ miles from butter factory and milk station. State road. Surface of farm, nearly level, creek bottom. Altitude, about 1,400 feet. Soil, sandy loam.

Acres in meadow, 6; in natural pasture, 4; acres tillable, 8. Fruit, 30 trees. Adapted to truck gardening and fruit. Fences, wire. House, 1½ stories, 9 rooms, fair condition. Outbuildings, new barn, hen house. Watered, house, by well; barn and fields, by creek. Occupied by owner. Reason for selling, owner lives too far away to attend to farm. Price, \$1,300. Terms, \$500 cash, balance on mortgage at 5 per cent. Address C. O. Gale, agent, Oxford, N. Y.

*No. 219 — Farm of 100 acres; on R. D. route, 3¼ miles from railway station at Norwich, on line of D., L. & W. and O. & W. R. R.; ½ mile from school; 3¼ miles from churches, milk station and milk condensing plant. Highways, State road. Surface of farm, rolling. Altitude, 1,600 feet. Soil, red loam. Acres in meadow, 40; in natural pasture, 45; in timber, 15, maple, beech and hemlock. Acres tillable, 50. Fruit, apples, pears and grapes. Best adapted to hay, grain and potatoes. Fences, stone and wire. House, 2 stories, 12 rooms. Outbuildings, large basement barn, 32x78, cement floor; hen house and hog pen, all in good condition. Watered, house and barn, by running water; fields, by springs. Occupied by owner. Reason for selling, owner wants to engage in other business. Price, \$5,000. Terms, \$2,300 cash, balance on easy terms. Address C. O. Gale, agent, Oxford, N. Y.

*No. 220 — Farm of 192 acres; located 3¼ miles from Oxford P. O., R. D. 2, and railway station, on line of D., L. & W. R. R.; 1 mile from school, 3¼ miles from churches and milk station. Highways, good. Surface of farm, rolling. Soil, loam. Acres in meadow, 50; in natural pasture, 100; in timber, 42, hemlock, ash, maple and beech. Acres tillable, 50. Fruit, apples, plums, cherries and pears. Best adapted to corn, oats and grass. Fences, wire, rail and stone wall. House, 18 rooms, good condition. Outbuildings, cow barn, 36x70; horse barn, 36x40; barn for tools, 30x40; shed, 18x30; corn house and hen house. Watered by spring and creek. Occupied by owner. Reason for selling, scarcity of farm labor. For price and terms address C. O. Gale, Oxford, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF SHERBURNE

Population 2,695

No. 221 — Farm of 273 acres; located 2 miles from Earlville P. O. and $1\frac{1}{2}$ miles from Earlville station, on line of D., L. & W. R. R.; 1 mile from school; 2 miles from Protestant churches; 4 miles from Catholic church; 2 miles from milk station; 3 miles from condensing plant. Highways, good. State road $\frac{1}{2}$ mile from farm. Village of Sherburne 4 miles from farm and village of Earlville 2 miles, reached by highway. Surface, rolling high land. Altitude, 1,500 feet. This farm is divided the same as the usual dairy farm, as to acres of meadow and pasture, etc.; has timber sufficient for farm purposes. Has apple orchard of about 50 trees. Land is best adapted to dairy farming, hops and potatoes. Fences, in good condition. One house in good condition, one house in poor condition, but worth repairing. Has large basement barn in good condition, good horse barn and other buildings. House watered from running brook; barns, by springs and brook. The Chenango River is $1\frac{1}{2}$ miles distant. Occupied by tenant. This farm cost present owner \$13,500. Reason for selling, to close an estate. Price, \$7,500. Terms, small payment down, about \$2,000, balance on easy terms. Address Howard D. Newton, executor, Norwich, Chenango County, N. Y. Owner will rent.

* No. 222 — Farm of 62 acres; located 3 miles from Sherburne P. O., R. D. No. 1, and railway station, on line of D., L. & W. R. R., $\frac{1}{4}$ mile from school, 3 miles from churches and milk station. Highways in good condition. Nearest large village, Norwich, 15 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 32; in natural pasture, 20; in timber, 6. Fruit, 13 apple trees. Best adapted to cabbage, potatoes, oats and corn. Fences, barbed wire. House, 2 stories, 14 rooms, good condition. Outbuildings, barn, 42x46, good condition. Watered by well and spring. Occupied by tenant. Price, \$2,300. Terms, \$1,000 cash, balance in reasonable time at 6%. Address Geo. L. Sholes, agent, Sherburne, N. Y.

* No. 223 — Farm of 154 acres; located $4\frac{1}{2}$ miles from Sherburne P. O.,

R. D. No. 3 and railway station, on line of D. L. & W. R. R., $\frac{1}{2}$ mile from school, $4\frac{1}{2}$ miles from churches and milk station. Highways, good. Surface of farm, rolling. Soil, loam. Acres in natural pasture, 100; in timber, 40, hemlock, maple, beech, ash, pine and basswood. Fruit, apples. Best adapted to cabbage, potatoes, corn and oats. Fences, mostly wire. House, $1\frac{1}{2}$ stories, 9 rooms, good condition. Running water at house and barns. Occupied by owner. Price, \$3,500. Terms, \$2,000 cash, balance on easy terms at 6%. Address Geo. L. Sholes, agent, Sherburne, N. Y.

TOWN OF SMITHVILLE

Population 949

*No. 224 — Farm of 100 acres; located $1\frac{1}{2}$ miles from Tyner P. O., R. D.; $5\frac{1}{2}$ miles from railway station at Oxford, on line of D., L. & W. R. R.; $1\frac{1}{2}$ miles from school and Universalist and Baptist churches; $1\frac{1}{2}$ miles from butter factory; $5\frac{1}{2}$ miles from milk station. Highways, some hills, but good. Nearest large village, Oxford, population 1,600, $5\frac{1}{2}$ miles distant, reached by highway. Surface, rolling, some level. Soil, good, rich clay loam. Acres in meadow, 40; in natural pasture, 55; in timber, 5, maple and beech; acres tillable, 40. Fruit, 50 apple trees in bearing. Best adapted to corn, potatoes, grain, grass and pasturage. Fences, mostly wire, in good condition. House, 2 stories, 9 rooms, good cellar, painted. Barns, one, 32x50; another, 26x30, and silo, barn clapboard. Watered, house and barn, by running water; fields, by springs. Good productive farm in a fine dairy farming section. Will keep 15 to 20 head of stock and team. Occupied by owner; lease expires March 1, 1912. Reason for selling, owner lives at a distance. Price, \$3,000. Terms, \$1,300 cash, balance can remain on mortgage. Address C. O. Gale, agent, Oxford, N. Y.

* No. 225 — Farm of 399 acres; located 4 miles from Tyner P. O., R. D. 1, from Greene; 8 miles from railway station at Greene, on line of D., L. & W. R. R.; 1 mile from school; 3 miles from Protestant churches; 2 miles from butter factory and cheese factory. Highways, good. Surface of farm, rolling, smooth fields. Altitude, about 1,500 feet. Soil, loam, fertile. Acres in meadow, 150; in natural pasture, 150.

* Indicates farm is in hands of agent or real estate dealer.

Timber enough for farm use. Acres tillable, 150. Some fruit. Best adapted to corn, potatoes, oats and hay. Fences, mostly wire, good condition. House 1½ stories, fair condition. Out buildings, barn, 34x70; horse barn and hay barn. Watered, house by good well; barns, by spring; fields, by spring and creek. Occupied by tenant. Reason for selling, Owner a widow and cannot attend to property. Large amount of valuable timber on this place. Price, \$5,200. Terms, \$500 cash, balance on mortgage at 5%. Address C. O. Gale, agent, Oxford, N. Y.

* No. 226 — Farm of 65 acres; located 4 miles from Tyner P. O., R. D. 1; 7 miles from railway station at Greene, on line of D., L. & W. R. R.; ½ mile from school, butter factory and cheese factory, 1½ miles from Protestant church; 7 miles from milk station. Highways in good condition. Surface of farm, rolling, smooth fields. Altitude, about 1,500 feet. Soil, clay loam. Acres in meadow, 25; in natural pasture, 30; in timber, 10, 300 sugar maples; acres tillable, 30. Fruit, apples, pears, plums, cherries, grapes and berries. Fences, wire and stone. House, 1½ stories, 8 rooms, good condition. Outbuildings, barn, 36x50; good basement for stock, wagons, etc., hay barn, granary and fine hen house. Watered, house by well; barn, by creek; fields, by springs and creek. Occupied by owner. Price, \$2,000. Terms, \$1,200 cash, balance on mortgage at 5 per cent. Address C. O. Gale, agent, Oxford, N. Y. A cow and 50 hens included in above price.

* No. 227 — Farm of 93 acres; located 1¼ miles from Tyner P. O.; 5½ miles from railway station at Oxford, on line of D., L. & W. R. R.; 1¼ miles from school, churches and butter factory; 5½ miles from milk station. Highways, good. Surface of farm slightly rolling. Altitude, about 1,500 feet. Soil, loam. Acres in meadow, 35; in natural pasture, 40; in timber, 8, hard wood; acres tillable, 35. Fruit, 30 apple and 2 pear trees, also one grape vine. Best adapted to corn, potatoes, oats, hay, etc. Fences, mostly wire. House, 2 stories, 12 rooms, good condition. Outbuildings, barn, 30x70; good

basement. Watered, house and barn by running water; fields, by spring and creek. Occupied by tenant. Reason for selling, advanced age of owner who has other business. Price, \$3,200. Terms, \$1,200 cash, remainder on mortgage at 5%. Address C. O. Gale, agent, Oxford, N. Y.

* No. 228 — Farm of 210 acres; located 8 miles from railway station at Greene, on line of D., L. & W. R. R.; 1½ miles from school; 4 miles from Methodist church; 2½ miles from butter factory and cheese factory; 8 miles from milk station. R. F. D. ½ mile from farm. Highways, good. Surface of farm, rolling. Altitude, 1,600 feet. Soil, light loam. Acres in meadow, 75; in natural pasture 100; in timber, 30, maple, beech and hemlock. Acres tillable, 150. Fruit, 25 apple and 2 pear trees. Adapted to all kinds of grain, hay, etc. Fences, wire and rail. House, 2 stories, 8 rooms, fair condition. Outbuildings, 2 barns, 1 nearly new, other needs repairing and hay barn. Watered house by running water; barns and fields, by springs. Occupied by owner. Reason for selling, owner has another farm. Price, \$2,200. Terms, \$400 cash, balance on easy terms at 5%. Address C. O. Gale, agent, Oxford, N. Y.

* No. 229 — Farm of 174 acres; located 4½ miles from railway station at Oxford, on line of D., L. & W. R. R.; ½ mile from school, Protestant church, butter factory and cheese factory; 4½ miles from milk station. Highways in first-class condition. R. F. D. passes farm. Surface of farm rolling. Altitude 1,600 feet. Soil, sandy loam. Acres in meadow, 60; in natural pasture, 80; in timber, 34, maple, beech, hemlock and chestnut. Acres tillable, 60. Fruit, 50 apple trees. Best adapted to hay, corn, potatoes, oats, etc. Fences, stone, wire and rail. House, 2 stories, 8 rooms, nearly new. Outbuildings, 2 good basement barns, tool house, ice house, hen house, all in good condition. Watered, house and barn by running water; fields, by springs and brook. Occupied by tenant. Reason for selling, owner in other business. Price, \$5,500. Terms, \$2,000 cash, balance at 5%. Address C. O. Gale, agent, Oxford, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 230 — Farm of 122 acres; located 2 miles from Tyner P. O., R. D. No. 1, 6½ miles from railway station at Oxford, on line of D., L. & W. R. R.; 1½ miles from school, butter factory and cheese factory; 6½ miles from milk station. Highways in first-class condition. Surface of farm, slightly rolling. Altitude, about 1,500 feet. Soil, clay loam. Acres in meadow, 45; in natural pasture, 70; in timber, 8, maple, beech and hemlock. Acres tillable, 40. Fruit, 30 apple trees, 2 grape vines. Best adapted to corn, potatoes, oats, buckwheat, etc. Fences, mostly wire, good. House, 2 stories, 5 rooms. Barn needs some repairs. Watered, house by well; barn and fields by springs. Occupied by owner. Reason for selling, owner has another farm. Price, \$1,700. Terms, \$750 cash, balance on easy terms at 6%. Address C. O. Gale, agent, Oxford, N. Y.

TOWN OF SMYRNA

Population 1,205

* No. 231 — Farm of 128 acres; located 1¼ miles from Smyrna P. O. and railway station, on line of O. & W. R. R.; 1¼ miles from school, churches and milk station. Nearest large village, Norwich, 12 miles distant, reached by rail and highway. Surface of farm, level. Soil, loam. Acres in meadow, 40; in natural pasture, 80; in timber, 8, maple. Fruit, 25 apple trees. Best adapted to corn, oats, cabbage and potatoes. Fences, wire. House, 2 stories, 12 rooms, good condition. Outbuildings, barn, 34x110; shed, 100 ft. long; hen house and tool house, good condition. Watered by two wells, windmill spring and stream. Occupied by owner. Price, \$6,000. Terms, \$2,000 cash, balance reasonable time, 6%. Address Geo. L. Sholes, agent, Sherburne, N. Y.

CLINTON COUNTY

Area, 1,092 square miles. Population, 48,230. Annual precipitation, 42.47 inches. Annual mean temperature, 46.8°. Number of farms, 3,608. County seat, Plattsburg.

This county lies in the northeast corner of the state, bounded on the eastern side by Lake Champlain.

The surface is generally hilly and broken, and in the southern and western parts mountainous. The county is rich in deposits of magnetic iron ore of the best quality. A part of the central and western portions of the county is covered by the original forests. Along the lake shore the surface is level or moderately uneven. Drift deposits in the northern and eastern parts are abundant, also peat bogs.

The soil is a clay and sandy loam and many fine farms are found in this county. The chief rivers of the county are Ausable, Little Sable, Salmon, Saranac, Little Chazy, Great Chazy and the English. Upon all of these rivers and streams are numerous falls furnishing an immense amount of water power. In the western wilderness portion are many famous lakes, the principal of which are the Chateaugay, Chazy, Sampson and Taylor. This section is a great resort for hunters, game and fish being found in abundance. Plattsburg, the county seat, has a population of 11,000, and furnishes a good local market. The United States military post is located at Plattsburg and the Dannemora State Prison is located in the county. There is a large business carried on in lumbering, mining, iron making and for the area covered a remarkable showing in agriculture. There are great possibilities for apple growing in this county along the east lake shore. The principal agricultural products are as follows: corn, 154,628 bushels; oats, 643,439 bushels; barley, 32,853 bushels; buckwheat, 102,933 bushels; potatoes, 1,325,041 bushels; hay and forage, 103,362 tons. The value of all farm property is \$18,116,645, showing a remarkable increase of 50.3 per cent. over the value in 1900. The average value of unimproved land is \$3.40 per acre. Number of dairy cows reported, 25,032; horses, 10,415; swine, 11,563; sheep, 11,069; poultry, 98,617. The total milk production was 10,188,024 gallons. The receipts from sale of dairy products was \$779,834. The average price of improved farm land, including buildings, \$31.37 per acre. There are 185 district schools, several excellent high schools and a State Normal College located at Plattsburg. Churches of all denominations are located in the villages and country districts. There are thirteen agricultural organizations, namely, one county fair association, eleven granges, one Pomona grange; 64 miles of state and

* Indicates farm is in hands of agent or real estate dealer.

county roads and 947 miles of other improved highways. The D. & H. railroad traverses the eastern boundary of the state and extends through other portions of the county, giving unusual facilities in connection with the water transportation of the lake, for the products that are grown, manufactured or mined in the county.

TOWN OF AUSABLE

Population 2,045

No. 232 — Farm of 135 acres; 1 mile from Arnold station; 2 miles from Clintonville P. O. Loamy soil, adapted to general farming. Fine scenery. Good trout fishing. Deer and other game. Watered by springs. Well fenced. Forty-five acres timber, balance meadow and pasture. Good orchard. Two-story frame house of 10 rooms, in fine repair. Water and bathroom in house. Large barn, stable and outbuildings, all in good condition. This farm would make a good poultry farm. Near a good market. Reason for selling, advanced age of owner. Price, \$3,000. Easy terms. Name and address of owner, John Pat-
tinson, Clintonville, N. Y.

No. 233 — Farm of 500 acres; located 2¼ miles from P. O. at Keeseville, R. F. D.; 2¾ miles from railway station at Keeseville, on line of K. A. & L. C. and D. & H. railways; 2½ miles from school, butter factory, Catholic and Protestant churches. Highways, State road. Surface, about 100 acres river flats and level ground, balance hilly. Altitude, about 1,000 ft. Soil, sandy loam. Acres in meadow, 100; in natural pasture, 400; in timber, 300, pine and other kinds. Acres tillable, 100. Good orchard. Best adapted to general farming. Fences, wire, good condition. House, large, electric lights, telephone, etc., good condition. Outbuildings in good condition. Watered by springs. This farm is about ¼ mile from Ausable river. Private pond on place. Occupied by owner. Reason for selling, owner is

commissioner of highways and has too much other work. Price, \$12,000. Terms easy. Address Richard S. Mace, Keeseville, N. Y.

No. 234 — Farm of 20 acres; located at Keeseville, on line of K. A. C. & L. C. R. R. and D. & H. R. R.; 6 miles from churches. Highways, State road. Surface of farm level. Altitude, 1,000 ft. Soil, sandy loam. House, barns and other buildings with land cost, \$22,000. All buildings remarkably well built. Price, \$10,000. Address Geo. W. Smith, Keeseville, N. Y.

TOWN OF BEEKMANTOWN

Population 1,860

No. 235 — Farm of 125 acres; located 3 miles from Plattsburg P. O., R. D. 5; 1½ miles from railway station at Beekmantown, on line of D. & H. R. R.; ¼ mile from school; 3 miles from churches, butter factory and cheese factory; 2 miles from milk station. Highways, 2 State and 1 country road. Surface of farm, rolling. Soil, muck and gravel. Acres in meadow, 50; in natural pasture, 30; in timber, 15, maple and cedar. Acres tillable, 80. Fruit, 200 apple trees. Best adapted to corn, clover, alfalfa and general crops. Fences, wire and rail, fair condition. House, 12 rooms, brick, fair condition. Outbuildings, 7 barns. Watered, house by well and cistern, barns and fields by spring. This farm is 3 miles from Lake Champlain. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$5,500. Terms, \$2,500 cash, balance to suit buyer. Address Frank A. Wolcott, Plattsburg, N. Y., R. D. 5.

COLUMBIA COUNTY

Area, 688 square miles. Population, 43,658. Annual precipitation, 46 inches. Annual mean temperature, 50°. Number of farms, 2,963. County seat, Hudson. Average price of farm land per acre, \$42.60. This is an increase of 31.6 per cent. in ten years.

This county lies on the east shore of the upper Hudson and extends east to the line of Massachusetts. The Taghkanick Mountain extends along the east border and the adjoining parts of the county are broken by irregular ranges of hills which constitute the outlying spurs of these mountains. The western portion of the county spreads out in an undulating plateau terminating in the bluffs of the Hudson River. The principal streams are the Jansenskill, Claverack, and Kinderhook Creeks. These streams and their tributaries have valuable water powers and prosperous mills are located on them. In the northern portion of the county are numerous lakes and

ponds all well stocked with fish. Thermal and mineral springs are found in places, the former, quite celebrated, located at New Lebanon. The various branches of agriculture form the leading industrial pursuits of the people. At the same time there are manufactured to a large extent paper and cotton fabrics, vegetable extracts and iron. The county is most favorably situated for commerce, as the largest ships can dock at Hudson. The principal crops are: corn, 410,576 bushels; oats, 503,088 bushels; buckwheat, 81,073 bushels; rye, 230,195 bushels; potatoes, 232,702 bushels; hay and forage, 89,208 tons. Columbia County ranks first in the production of rye and the demand for rye straw in New York City, together with the cheapness of transportation makes this product almost as valuable as the grain itself. The live stock of the county is classified as follows: dairy cows, 16,136; horses, 9,150; swine, 13,091; sheep, 25,229; poultry, 172,879; production of milk, 7,772,732 gallons. Receipts from sale of dairy products was \$714,274. This county is a choice location for the raising of apples and other orchard fruits.

The soil survey recently made by the United States Government affirms that the county has a soil and climate equal to any portion of the state for orcharding. Railway and electric lines, together with good roads, make ample facilities for shipping products. There are 150 district schools; churches of all denominations are established in the villages and through the rural sections. There are twenty agricultural organizations established in the county. The total valuation of farm property is \$19,819,369, an increase of 31.6 per cent. in ten years. The prosperity of the farmers in this county is noted by an increase of nearly \$2,500,000 in the value of farm buildings alone.

TOWN OF ANCRAM

Population 1,137

No. 236 — Farm of 245 acres; located 2 miles from Mt. Riga P. O.; 1 mile from railway station at Halsted; 2 miles from railway station at Mount Riga, on line of C. N. E. R. R.; 2½ miles from railway station at Boston Corners, on line of Harlem Division, N. Y. C. & H. R. R. R.; 1 mile from school and church; 2½ miles from milk station. Highways, somewhat hilly but good. Nearest large village, Millerton, population about 858, about 6 miles distant, reached by rail and highway. Soil, clay loam. Acres in meadow, about 75; in natural pasture, 75 to 100; in timber, about 40, mostly second growth chestnut and oak, good size; acres tillable, 150. Fruit, apples and some small fruit. Best adapted to grass. Fences, stone wall and rail, wire, fair condition. House, 8 rooms, 22x28, good condition. Outbuildings, horse barn and wagon house, 30x20, hayloft overhead; barn, 30x44, deep bay on one side of main floor, stables with 18 stanchions in basement; woodhouse, 12x13; hoghouse; all in fair condition. Watered by cistern and springs. Occupied by tenant. Reason for selling, owner living elsewhere. Price, \$5,000. Terms, \$1,500 cash, and mortgage for balance for 5 years at 5%. Address Calvin S. McChesney, Rooms 411-415 Cannon place, Troy, N. Y. Owner will rent for cash.

* No. 237 — Place of 6 acres; located 1 mile from Copake P. O., 1½ miles from railway station at Copake, on line of Harlem Ry.; ¾ mile from school; 1½ miles from Dutch Reformed church; 1½ miles from milk station. Highways, good. Nearest city, Hudson, 15 miles distant, reached by rail. Surface of farm rolling. Altitude, about 850 feet. Fruit, 25 apple trees. House, 18x24, 1½ stories, 5 rooms, piazza, 6x15, first-class condition. Large barn in good condition. Watered by well. Small lake joins farm, frontage 1,000 feet. Occupied by owner. Reason for selling, owner has other business. Price, \$1,750. Address Herbert Eggleston, agent, Millerton, N. Y.

*No. 238 — Farm of 260 acres; located 2½ miles from Boston Corners P. O. and railway station, on line of Harlem Ry.; 1 mile from school; 3 miles from Protestant churches; 2½ miles from milk station. Highways, good. Nearest village, Copake, population about 600, 2½ miles distant, reached by highway. Surface of farm rolling. Soil, limestone. Acres tillable, 200. Fruit, 75 apple, 10 pear and 10 cherry trees. Best adapted to grass, oats, corn, etc. Fences, rail and wire, good condition. House, 18x40, 13 rooms, good condition. Outbuildings, barn, 34x66; barn, 28x42; hog pen, 20x40; hen house, 16x24; machine barn, 22x50; ice house, 16x24; wood house, workshop,

* Indicates farm is in hands of agent or real estate dealer.

room for 10 horses, 42 cows; buildings in good condition. Watered, house, by well; barn, by windmill; fields, by streams. River runs through farm. Reason for selling, owner in other business. Price, \$10,000. Terms, \$3,000. Address Herbert Eggleston, agent, Milerton, N. Y.

TOWN OF AUSTERLITZ
Population 811

*No. 239 — Farm of 100 acres; located 3 miles from Chatham P. O. and railway station, on line of B. & A. Ry.; 1 mile from school and church; ½ mile from butter factory; 3 miles from milk station. State road. Surface of farm, nearly level. Altitude, about 600 feet. Soil, loam. Acres in meadow, 100; in natural pasture, 30; in timber, 30. Acres tillable, 130. Some fruit. Best adapted to hay, grain, etc. Fences, wire and rail. House, 14 rooms, good condition. Outbuildings, 4 large barns, first-class condition. Watered, house, by well; barn, by running water; fields, by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,000. Terms, one-half down. Address S. N. Loomis, agent, Chatham, N. Y.

*No. 240 — Farm of 200 acres; located 1 mile from State Line P. O. and railway station, on line of B. & A. Ry.; 1 mile from school, church, butter factory and milk station. Highways, good. Surface of farm, rolling. Altitude, about 500 feet. Soil, heavy loam. Acres in meadow, 100; in natural pasture, 50; in timber, 50; acres tillable, 100. Large quantity of fruit of all kinds. Best adapted to hay. Large house, 14 rooms. Large barns in first-class condition. Watered by brook and spring. Occupied by owner. Reason for selling, owner wants smaller farm. Price, \$8,000. Terms, \$5,000 cash. Address S. N. Loomis, agent, Chatham, N. Y.

*No. 241 — Farm of 196 acres; located 1 mile from Austerlitz P. O.; 3 miles from railway station at State Line, on line of B. & A. R. R.; 1 mile from school and church. Highways, good. Surface of farm, rolling. Altitude, about 900 feet. Soil, loam. Acres in meadow, 40; in natural pasture, 100; in timber, 50; acres tillable, 100. Fruit, apples, pears and plums. House, 8

rooms, good condition. Two barns, fair condition. Watered by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,500. Terms, \$2,000 down. Address S. N. Loomis, agent, Chatham, N. Y.

*No. 242 — Farm of 170 acres; located 4 miles from Ghent P. O. and railway station, on line of N. Y. C. R. R.; ½ mile from school; 4 miles from churches. Highways, somewhat hilly, but good. Surface of farm rolling. Soil, loam. Acres in meadow, 70; in natural pasture, 80; in timber, 20. Acres tillable, 150. Fruit, 100 apple, 20 cherry, 75 plum and 15 pear trees; also 10 large grape vines. Best adapted to grass, grain and fruit. Fences, wire. Large house, 2 stories, 14 rooms. Outbuildings, main barn, 45x60; wagon house, 26x32; hen house, 15x20; tool house, 17x30; wood house, 18x20, and hog pen, 12x24. Watered by creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,000. Terms, one-half cash. Stock, tools, crops, etc., included in price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

No. 243 — Farm of 170 acres; located 4 miles from railway station at Ghent, on line of Harlem Division of N. Y. C. Ry. and Hudson-Chatham branch of Boston & Albany Ry. Nearest large village, Chatham, 6 miles distant, reached by rail and highway. Highways, somewhat hilly, but good. This farm is 1 mile from school; 2 miles from Protestant churches and creamery; 5 miles from milk shipping station. Acres in natural pasture, 60; acres tillable, 130; acres in timber, 20, chestnut, oak, maple, etc. Occupied by owner. Large house, main part 25x40, wing 18x24, 14 rooms. Outbuildings, main barn, 45x60, stanchions for 18 cows, stalls for 6 horses; wagon house, 26x32; hen house, 15x20; hog pen and corn house, 12x24; wood house, 15x20, two stories; shop, 10x12; new tool house, 14x35; all in good condition. Daily mail at door. Watered by two wells and several springs. Adapted to dairying, poultry raising, fruit raising or general farming. Soil, clay subsoil, no gravel or swampy land. Altitude, 800 feet. Fruit, 100 apple, 20 cherry, 20 pear and 75 plum trees; also ten large grape vines. Fences, mostly wire, some

* Indicates farm is in hands of agent or real estate dealer.

rail and wall, good condition. Reason for selling, owner unable to care for farm. Price, \$5,000. Terms, \$1,500 cash, balance on mortgage at 5% interest. Address John Freehan, Ghent, N. Y., R. D. 2. Owner will rent with option to buy.

No. 244 — Farm of 20 acres; located $3\frac{1}{2}$ miles from Chatham P. O. and railway station; 1 mile from school and churches; $\frac{1}{2}$ mile from butter factory. State road within $\frac{1}{4}$ mile of farm. Nearest city, Albany, 24 miles distant. Surface of farm, rolling. Altitude, 800 feet. Soil, clay loam. All tillable. Fruit, 1,200 apple trees. Best adapted to fruit. House, 24x30, 6 rooms, fair condition. Watered by well. Occupied by owner. Reason for selling, owner in other business. Price, \$4,500. Terms, 75% cash. Address T. F. Niles, Chatham, N. Y.

*No. 245 — Farm of 100 acres; located $1\frac{1}{4}$ miles from Chatham P. O. and railway station, on line of B. & A. and N. Y. C. R. R.; $1\frac{1}{4}$ miles from school, churches and milk station. Highways, State road. Surface of farm, level. Altitude, 500 feet. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 15; in timber, 15, mixed. Acres tillable, 75. Adapted to all crops grown in this climate. Fences, wire and stone. House, in excellent condition. Outbuildings, large and in good condition. Watered, house and barn, by water piped from spring. Reason for selling, owner has other business. Price, \$8,500. Terms to suit purchaser. Address S. N. Loomis, agent, Chatham, N. Y.

No. 246 — Farm of 100 acres; located 1 mile from Chatham P. O. and railway station, on line of B. & A. and N. Y. C. R. R.; $\frac{1}{4}$ mile from school; 1 mile from church and milk station; $1\frac{1}{2}$ miles from butter factory. Highways, State road. Surface of farm, level. Altitude, 300 feet. Soil, loam. Acres in meadow, 90; in natural pasture, 10. All tillable. Fruit, 75 trees. Adapted to any crop grown in this climate. Fences, wire and wood, good condition. House, 12 rooms. Outbuildings, in good condition. Watered, house and barns, by running water; fields, by brook and springs. Occupied by owner. Reason for selling, ill health and advanced age of owner. For price and terms address S. N. Loomis, owner, Chatham, N. Y.

*No. 247 — Farm of 560 acres; located 1 mile from Green River P. O.; 5 miles from railway station at Hillsdale, on line of N. Y. C. R. R.; 1 mile from school and church; 5 miles from butter factory and milk station. Highways, in good condition. Nearest large village, Hillsdale, 5 miles distant, reached by highway. Surface of farm, rolling. Altitude, 500 feet. Soil, loam. Acres in meadow, 200; in natural pasture, 200; in timber, 160. Acres tillable, 200. Fruit, mixed varieties. Best adapted to hay and stock. Fences, wood and wire. House, in fair condition. Large barn, in fair condition. Watered, house and barn, by water piped from spring; fields, by springs and brooks. Occupied by tenant. Reason for selling, to close an estate. Price, \$12 per acre. Terms easy. Address S. N. Loomis, agent, Chatham, N. Y.

TOWN OF CANAAN

Population 1,167

*No. 248 — Farm of 260 acres; located 3 miles from East Chatham P. O. and railway station, on line of B. & A. R. R.; 1 mile from school; 3 miles from churches, butter factory and milk station. Highways, in good condition. Surface of farm, rolling. Altitude, 800 feet. Soil, slate. Acres in meadow, 100; in natural pasture, 100; in timber, 60, mixed. Acres tillable, 150. Best adapted to sheep. Fences, wire and stone. House, 16 rooms, good condition. Outbuildings, ample accommodation for 200 sheep and 15 cows. Watered by spring and brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500. Terms to suit purchaser. Address S. N. Loomis, agent, Chatham, N. Y.

TOWN OF CHATHAM

Population 3,396

No. 249 — Foundry property; situated in the village of Old Chatham, $\frac{1}{4}$ acre of land; 500 feet from railroad station, on Rutland Railway. Buildings are 65x80 feet, divided into a large moulding room, stock room, flask room, machine shop, wood shop and boiler room. Equipped with 14-horse-power engine and boiler, blower, pulleys, shaftings, new belts, emery wheels and casting cleaner, together with a large assortment of flasks, moulding sand; everything ready to start at a moment's

* Indicates farm is in hands of agent or real estate dealer.



FIG. 116.—HOUSE ON FARM NO. 243, TOWN OF AUSTERLITZ, COLUMBIA COUNTY.



FIG. 117.—HOUSE ON FARM NO. 256, TOWN OF CHATHAM, COLUMBIA COUNTY.

notice. This plant is peculiarly adapted for a light manufacturing business, either as a foundry or other manufacturing enterprise. The buildings were thoroughly repaired and rebuilt last year and are practically all new. The last articles manufactured were chilled sleigh shoes. Reason for selling, to close an estate. Price, \$700, including equipment, site, building and small stocks of old iron. Would make good location for a shirt factory or barrel factory. Terms, cash. Address C. A. Hulbert, administrator, Old Chatham, N. Y. Owner will rent.

*No. 250 — Farm of 51 acres; located 2½ miles from Rayville P. O.; 2½ miles from railway station at Rayville; 2½ miles from school, churches of all denominations and from milk station. Highways, good. Nearest village, Chatham, population 2,251, 5 miles distant, reached by rail. Surface of farm, rolling. Slate soil. Acres in meadow, 35; in natural pasture, 10; in timber, 6. Acres tillable, 45. Fruit, 75 apple, 10 pear, 30 plum, 24 peach, 25 cherry, 3 quince trees; also small fruits. Best adapted to fruit and grain. Fences, in fair condition. House, 18x26, ell, 10x26, 1½ stories, 9 rooms, piazza; tenant house, 7 rooms, all in good condition. Barn, 24x36; wagon house, 16x16; barn, 12x10; hen house, 10x14; smoke house; all in good condition. Watered, house, by cistern and well; barns, by springs; fields, by springs and stream. Occupied by owner. Reason for selling, owner desires to purchase a larger farm. Price, \$1,200. Terms, one-half cash, balance on mortgage. Address Herbert Eggleston, agent, Millerton, N. Y.

*No. 251 — Farm of 115 acres; located 1 mile from Chatham P. O.; 1 mile from railway station at Chatham, on line of B. & A. R. R.; 1 mile from school and 2 churches; 1½ miles from milk station. Highways, good. Nearest large village, Chatham, population 2,251, 1 mile distant, reached by highway. Altitude, 600 feet. Surface of farm, rolling. Soil, deep loam. Acres in meadow, 40; in natural pasture, 10; in timber, 5, pine and hemlock; all tillable, except woodland. Best adapted to corn, oats and hay. Fences, in fair condition. House, 10 rooms, good con-

dition. Barn, 40x65, nearly new. Water piped to house; barns watered by brook; fields by springs. Near the Berkshires. Occupied by owner. Reason for selling, owner wishes smaller place. Price, \$6,000. Terms, ½ cash. Address S. N. Loomis, agent, Chatham, N. Y.

No. 252 — Farm of 93 acres; located 1½ miles from North Chatham P. O. and railway station, on line of Albany & Southern Ry.; 1 mile from school; 1½ miles from churches. Highways, good. Nearest city, Albany, 15 miles distant, population about 100,000, reached by trolley. Surface of farm, rolling. Soil, gravel, loam and lime. Acres in meadow, 30; in natural pasture, 10; in timber, 4. Acres tillable, 88. Fruit, 4 acres of fruit. Best adapted to hay, oats, rye and corn. Fences, good. House, 18 rooms, fine condition. Outbuildings all in good condition. Well watered. Occupied by tenant. Reason for selling, to close an estate. Price, \$6,000. Terms, ½ cash. Address Geo L. Smith, North Chatham, N. Y.

No. 253 — Farm of 83 acres; located 1½ miles from Malden Bridge P. O.; 2 miles from railway station at Chatham Center, on line of B. & A. Ry.; 1 mile from school; 2 miles from Methodist and Catholic churches; 4 miles from milk station. Highways, good. Surface of farm, rolling. Soil, gravel, loam and lime. Acres in meadow, 35; in natural pasture, 15; in timber, 3, pine and oak. Acres tillable, 80. Fruit, 2 acres of young orchard. Best adapted to oats, rye and hay. Fences, in fair condition. House, 1½ stories, good size, fair condition. Outbuildings, nearly new. Well watered. Kinderhook Creek ½ mile from farm. Occupied by tenant. Reason for selling, ill health of owner. Price, \$3,500. Terms, ½ cash. Address Geo. L. Smith, North Chatham, N. Y.

No. 254 — Farm of 170 acres; located ½ mile from North Chatham P. O.; ¼ mile from railway station at North Chatham, on line of A. & S. Ry.; ½ mile from school; ½ mile from Protestant church. Highways, good. Nearest city, Albany, 13 miles distant, reached by rail. Surface of farm, mostly level. Soil, gravel and limestone. Acres in

* Indicates farm is in hands of agent or real estate dealer.

meadow, 25; in timber, 25, hemlock, pine, oak and maple. Acres tillable, 120. Fruit, 125 apple trees. Fences, wall, board and wire. Large double house, in good condition. Outbuildings, two barns, corn house, sheds and wagon house. Watered, house by well and cistern; barns and fields by springs and streams. Occupied by owner. Reason for selling, owner has two other farms. For price and terms, address Dudley Walker, North Chatham, N. Y. Owner will rent.

No. 255 — Farm of 146 acres; located 1 mile from Old Chatham P. O., R. D. No. 1, and railway station, on line of Rutland R. R.; 1 mile from school, milk station, Methodist and Catholic churches. Highways, rolling. Surface of farm, rolling. Soil, gravel loam. Acres in meadow, 75; in natural pasture, 30; in timber, 8, maple, oak and pine. Acres tillable, 125. Fruit, 100 apple trees. Best adapted to rye, oats, potatoes and corn. Fences, in fair condition. Large house, in good condition. Outbuildings, in fair condition. Water piped to house and barns. This farm is 1 mile from Kinderhook creek. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$6,000. Terms, $\frac{1}{2}$ cash. Address Cyrus Cole, Keyport, N. J.

No. 256 — Country place of three acres; located in the center of New Concord, in the foothills of the Berkshires. Altitude, 900 feet; 30 miles from Albany and 22 miles from Pittsfield; reached by rail; 1 mile from East Chatham, on the line of Boston & Albany R. R.; 5 miles from Canaan and 6 miles from Queechy Lake. Colonial house, having a frontage of 45 feet, with broad porch and white marble steps, 12 rooms, all rooms on first floor have been renovated within past three years. Watered by cement cistern. Fruit, apples, plums, grapes, cherries, blackberries, red raspberries, white raspberries, red and white currants, gooseberries and strawberries. Price, \$7,500. This price includes furniture, equipment, garden tools, etc. Address Rural Life Co., Kinderhook, N. Y.

No. 257 — Farm of 156 acres; located 1 mile from North Chatham, schools, churches and Albany & Southern R. R.; 2 miles from State road leading from Albany to Nassau. Soil, limestone. Surface of farm, rolling. Fruit, three apple

orchards, two in bearing. Large double house. Large basement barn, 2 stories; concrete cow stable, milk house with running spring water for cooling milk, shed 40 feet long for young stock or sheep, two wagon houses and corn house. Price, \$30 per acre. Address Dudley Walker, North Chatham, N. Y.

TOWN OF CLAVERACK

Population 4,114

No. 258 — Farm of 132 acres; located 2 miles from Claverack; 3 miles from Mellenville R. D. 1; $\frac{1}{2}$ mile from railroad station at Miller's Crossing on branch of B. & A. Ry.; 2 auto buses between Hudson and Pailmont hourly; 3 miles from 4 different churches, high school and milk station. State road; 6 miles from Hudson, population about 12,000. Surface of farm, level. Soil, sandy loam. Acres in meadow, 100; in natural pasture and woodland, 20, ash, pine, white oak and black oak. Acres tillable, 112. Adapted to hay and vegetables. Fences, rail and wire. Fruit, 450 apple and 380 pear trees. Large house, in good condition. Outbuildings, large barn, large wagon house, tool house, hog house, ice house, small shop, wood house and hen house. Watered by well, spring and creek. Occupied by owner. Reason for selling, owner is not a farmer. A good trout stream runs through farm, also a fish pond on the farm covering nearly 2 acres, fed by three springs. Price, \$6,500. Terms, \$3,300 cash, remainder on mortgage. Address Guy Shook, Philmont, N. Y.

* No. 259 — Farm of 135 acres; located 1 mile from Martindale P. O., R. D. 2 and railway station, on line of N. Y. C. Ry.; $\frac{1}{2}$ mile from school; 1 mile from Protestant church and milk station. Nearest city, Hudson, 10 miles distant, population about 12,000, reached by rail. Surface of farm, rolling. Altitude, about 650 feet. Soil, loam. Acres in meadow, 25; in timber, 15, pine and hardwood. Acres tillable, 80. Fruit, 100 apple, 20 pear, 10 plum, 50 peach and 10 cherry trees, also 3 grapevines and 8 currant bushes. Best adapted to oats, corn, rye and fruit. Fences, wall and wire. House, $1\frac{1}{2}$ stories, 14 rooms, good condition. Outbuildings, barn, shed, 3 hen houses, wagon house, ice house, smoke house, milk house, wood house, good condition.

* Indicates farm is in hands of agent or real estate dealer.

Watered, house by well, barns by running water, fields by streams. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,000. Address Herbert Eggleston, agent, Millerton, N. Y.

* No. 260 — Farm of 200 acres; located 2 miles from Martindale P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches and milk station. Highways, good. Nearest city, Hudson, 7 miles distant, reached by rail. Surface of farm, rolling. Soil, loam. Acres in meadow, 60; in natural pasture, 120; in timber, 20. Acres tillable, 180. Best adapted to grass, grain, fruit and dairying. Fences, wire, in good condition. Price, \$5,500. Terms, easy. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

No. 261 — Farm of 96 acres; located 500 feet from Mellenville P. O. and railway station, on line of B. & A. branch railway; $\frac{1}{8}$ mile from school; $\frac{1}{16}$ mile from Dutch Reformed church; $\frac{1}{4}$ mile from butter factory and milk station. Highways, good. Nearest city, Hudson, 8 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, gravel. Acres in meadow, 60; in natural pasture, 36. Acres tillable, 80. Fruit, a few apple trees. Best adapted to hay and grain. Fences, wire and rail, poor. House, brick, 2 stories and basement, 35x60, good condition. Outbuildings, large new barn, 30x40, and wagon house, 18x30, good condition. Watered, house, by well; barn, by stream; fields, by stream and spring. Mellenville stream runs through farm, never dry. Occupied by tenant. Reason for selling, owner in other business. Price, \$4,750. Terms easy. Address W. J. Delamater, Hudson, N. Y.

TOWN OF CLERMONT
Population 800

No. 262 — Farm of 5 acres; located 5 miles from Germantown P. O., R. D. 1; 5 miles from railway station at Germantown, on line of N. Y. C. R. R.; $\frac{1}{8}$ mile from school; 2 miles from church; 4 miles from butter factory; 5 miles from milk station. Nature of highways, good. Nearest city, Hudson, population 12,000, 11 miles distant, reached by highway. Surface, level. Soil, gravelly loam. Acres in meadow, 5. About 30 to 40 fruit trees. Fences, wire, in good

condition. House, in good condition. No barn, but other outbuildings. Watered by well and spring. This place is best adapted to small fruit and vegetables; also well adapted to poultry raising. It is near an electric light and power plant that is being developed at large cost. Occupied by tenant. Price, \$1,500. Terms, \$700 cash, balance on time. Owner will rent for \$125 per year, payable in advance. Address H. S. Williams, Clermont, N. Y.

No. 263 — Farm of about 20 acres; located $1\frac{1}{4}$ miles from Clermont P. O.; 6 miles from railway station at Tivoli, on line of New York Central R. R.; $4\frac{1}{2}$ miles from C. N. E. R. R. station; $1\frac{1}{4}$ miles from school; 3 miles from churches; 6 miles from butter factory; $4\frac{1}{2}$ miles from milk station. Nature of highways, good. Nearest city, Hudson, population about 12,000, 13 miles distant, reached by highway. Soil, limestone. Acres in meadow, 10; in natural pasture, 3. Acres tillable, 18. About 375 fruit trees. Adapted to all climatic crops; would make a good poultry, fruit or dairy farm. House, in fair condition. Good-sized barn and other outbuildings, in fair condition. Watered by well. 6 miles from Hudson River and boat lines. Occupied by tenant. Reason for selling, owner bought place to improve and sell. Price, \$2,200. Terms, one-half cash, balance on mortgage. Address H. S. Williams, Clermont, N. Y. Owner will rent.

No. 264 — Farm of 80 acres; located $1\frac{1}{4}$ miles from Elizaville P. O.; $1\frac{1}{2}$ miles from railway station at Elizaville, on line of C. N. E. R. R.; 6 miles from N. Y. C. R. R., and 6 miles from the Hudson River boat lines at Tivoli; 1 mile from school; $1\frac{3}{4}$ miles from church; 1 mile from butter factory; $1\frac{1}{2}$ miles from milk station. Highways, hilly. Nearest city, Hudson, population, about 12,000, 14 miles distant, reached by highway. Surface, part level and some hilly. Soil, sandy loam. Acres in meadow, 30; in natural pasture, 10; in timber, 5; acres tillable, 70. Over 100 fruit trees. Best adapted to hay, oats, fruit, apples, pears, cherries and small fruit; would make a good poultry or dairy farm. Fences, wire and rail, in fair condition. Good-sized house, in

* Indicates farm is in hands of agent or real estate dealer.

good condition. Large barn, in good condition. Watered by well. Location is high and healthful. Occupied by tenant. Price, \$3,500. Terms, \$1,500 cash, balance on time. Address H. S. Williams, Clermont, N. Y.

TOWN OF COPAKE

Population 1,283

*No. 265 — Farm of 186 acres; located 3 miles from Hillsdale P. O., R. D.; 3 miles from railway station at Hillsdale and Copake Iron Works, on line of Harlem Division of N. Y. C. R. R.; 1 mile from school; 3 miles from churches and milk station. Highways, good. Nearest city, Hudson, population, 12,000, 20 miles distant, reached by rail and highway. Surface, rolling, some hill land. Soil, limestone. Acres in meadow, 50; in natural pasture, 30; in timber, 20, chestnut and oak; acres tillable, 136. Fruit, about 3 acres of apples, also pears, cherries and grapes. Best adapted to general farming or dairying. Fences, rail, wire and stone. House, large, 12 rooms, piazza on 3 sides of house, good condition. Outbuildings: main barn, 90x30, in need of repairs; small barn; corn crib and granary, in good condition. Watered by well, spring and brook. Occupied by owner. Reason for selling, ill health of owner. Price, \$6,000. Terms, \$3,000 down, balance on mortgage. Address M. L. Jenks, Millerton, N. Y.

*No. 266 — Farm of 17½ acres; located ½ mile from Copake Falls P. O. and railway station, on line of Harlem Ry., ¼ mile from school, ½ mile from Catholic and Protestant churches, ¾ mile from milk station. Nearest city, Hudson, population, about 12,000, 16 miles distant, reached by rail. Surface of farm, rolling. Altitude, about 850 feet. Soil, limestone. Acres tillable, 15. Fruit, about 75 apple trees. House, 20x30, 5 rooms and bath on first floor, 2 rooms upstairs, piazza, 7x40, good condition. Outbuildings: cow barn, 2 chicken houses, 2 wagon houses, 1 tool house and summer kitchen, good condition. Watered, house and barn, by running water; fields, by springs and streams. Occupied by owner. Price, \$3,500. Terms, cash. Address Herbert Eggleston, agent, Millerton, N. Y.

*No. 267 — Farm of 223 acres; located 2 miles from Hillsdale P. O. and

railway station, on line of N. Y. C. & H. R. R. R., ¾ mile from school, 2 miles from milk station. Highways, good. Surface of farm, rolling. Soil, loam. Acres in meadow, 80; in natural pasture, 120; in timber, 23. Acres tillable, 180. Fruit, apples, pears, etc. Best adapted to grass, grain, fruit or dairying. Fences, wire, good. Good house. Good barns. Occupied by owner. This farm is near Copake Lake. Reason for selling, owner a widow. Price, \$8,000. Address E. Brionne & Co., 23 Duane St., New York, N. Y.

TOWN OF GALLATIN

Population 720

No. 268 — Farm of 150 acres; 2½ miles from Jackson Corners P. O., R. D.; 2½ miles from Mt. Ross railway station, on line of C. N. E. R. R. Good roads. Soil, slate and loam. Acres in meadow, 50; acres tillable, 140; in timber, about 12, mostly oak and chestnut. Fruit, 200 trees, plums, peaches, apples and pears. Best adapted to corn, oats, rye, hay and potatoes. Fences, in fair condition. House, 42x30, in good condition. Barn, 54x50, in good condition. Watered, house, by well; barn, by stream and spring. Nearly all the meadow is tillable; about 8 acres not so good, but has been plowed and can be again. Reason for selling, owner does not need farm. Price, \$2,500. Terms, \$800 cash, balance on bond and mortgage at 5%. Name and address of owner, Peter J. Near, Jackson Corners, N. Y.

*No. 269 — Farm of 150 acres; located 2 miles from Ancram P. O. and railway station, on line of C. N. E. R. R.; 2 miles from school and church. Highways, good. Surface, part level and part rolling. Soil, loam and slate. Acres in meadow, 120; timber, 30, oak, chestnut, some large; acres tillable, 120. Fruit of all kinds except peaches, grapes and berries. Best adapted to hay, oats and rye. Fences, rail and wire, fair condition. House, 1½ stories, 7 rooms, in good repair. Outbuildings: 2 barns; horse barn, cow stable, room for 24 cows and 4 horses, storage for 100 tons of hay. Watered by well, springs and stream. Occupied by tenant. Price, \$2,500. Terms, easy. Address Herbert Eggleston, Millerton, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

*No. 270 — Farm of 285 acres, 1 mile from Jackson Corners P. O., R. D.; on line of C. N. E. R. R.; 1 mile from station, school and Methodist church. Highways, good; 5 miles from milk station. Nearest large village, Pine Plains, 5 miles distant, reached by rail and highway. Occupied by tenant. Surface of farm, rolling. Soil, sandy loam. Acres in meadow, 120; in natural pasture, 100; in timber, 35, oak, chestnut, hemlock, hickory and maple; acres tillable, 225. Fruit, 100 apple trees, 10 pear trees, 50 plum trees, 50 peach trees. Best adapted to corn, rye, oats and hay. Fences, stone wall, stakes and rail. House, 40x50, in good condition. Main barn, 50x40, additions, 50x18 and 50x30, in fair condition. Watered, house and barn, by running water; fields, by springs and streams. Reason for selling, owner unable to work farm. Price, \$7,000. Terms, one-half cash, balance on mortgage. Address John O. Fulton, agent, Red Hook, N. Y.

*No. 271 — Farm of 150 acres; located 2 miles from Elizaville P. O. and railway station, on line of C. N. E. Ry., 2 miles from school and Methodist church, R. D. 2 from Jackson Corners. Highways, somewhat hilly but good. Nearest city, Hudson, 18 miles distant, population, about 12,000, reached by rail and highway. Occupied by owner. Surface of farm, rolling. Acres in meadow, 60; in natural pasture, 60; in timber, 25, oak, hickory, chestnut and pine. Acres tillable, 125. Soil, gravel. Fruit, 2,000 apple, 500 pear and 50 cherry trees. Best adapted to fruit, hay and grain. Fences, stone wall and rail. Watered, house, by spring; barn, by running water; fields, by spring. Price, \$8,500. Terms, \$3,500 cash, balance on mortgage. Address John P. Fulton, agent, Red Hook, N. Y.

*No. 272 — Farm of 246 acres; located $\frac{3}{4}$ of a mile from Elizaville P. O., 1 mile from Elizaville railway station, on line of C. N. E. Ry., $\frac{3}{4}$ mile from Methodist church. Highways, good gravel roads. Nearest large village, Red Hook, 7 miles distant, population, about 2,000, reached by rail and highway. Occupied by owner. Surface of farm, 100 acres creek meadows; balance, rolling. Soil, gravel and black loam. Acres in meadow, 150;

in natural pasture, 46; in timber, 50; pine, oak, chestnut, locust, hickory, ash and hemlock. Acres tillable, 200. Fruit, 500 apple and pear trees. Best adapted to corn, rye, oats, potatoes and hay. Fences, stone wall, rail and wire, good condition. House, 40x30, with addition, 45x20, fine condition. Outbuildings: large main barn, wagon house, hay barns, hog houses, etc. Watered, house and barn, by running water; fields, by spring and stream. This farm is one mile from Twin Lake. Reason for selling, ill health of owner. Price, \$12,000. Terms, \$7,000 cash, balance on mortgage. Address John P. Fulton, agent, Red Hook, N. Y.

No. 273 — Farm of 177 acres; located 1 mile from Elizaville P. O., $1\frac{1}{2}$ miles from railway station at Elerslie, on line of R. & C. Railway, 1 mile from school and Protestant church, 1 mile from milk station. Highways, good. Nearest large village, Red Hook, $5\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, some hilly, rolling and level. Soil, slate. Acres tillable, 100. Acres in timber, 50, hard wood and pine; 25 acres in natural pasture. Fruit, about 75 apple trees. Best adapted to rye, corn, oats and hay. Fences, rail, stone wall and wire, good. House, about 24x40, fair, also tenant house, 20x30, fair condition. Outbuildings: barn, 40x50; hay press house attached, 30x40; wagon house and corn crib, 20x20; hog house, 20x30, fair condition. Watered, house, by well; barn, by brook; fields, by springs and brooks. Occupied by tenant. Price, \$3,000. Terms, cash. Address Chas. A. Coons, Ft. Plain, N. Y.

TOWN OF GHENT Population 2,819

No. 274 — Farm of 175 acres; located 2 miles from Mellenville P. O.; $\frac{1}{4}$ mile from railway station at Pulver Station, on line of Hudson & Chatham branch of B. & A. R. R.; $\frac{3}{8}$ mile from school; 3 miles from churches; 2 miles from Borden's milk station. Nearest large village, Philmont, population, 2,000. Highways, good. Surface, mostly level, some rolling. Soil, black and gravelly loam. All of the land tillable. Fruit enough for family use. Best adapted to rye, oats, hay, corn and potatoes.

* Indicates farm is in hands of agent or real estate dealer.

Fences, woven wire, board and wall. Extra fine house, 12 large rooms, 2 large halls, colonial style. Outbuildings: large side hill barn, cow stable, sheep stable, hog house, corn house, carriage and wood house, in fair condition. Watered by well and stream. This property is about 8 miles from the Hudson river. This is a high-class farm, not abandoned. Reason for selling, owner has other business. R. F. D. and telephone lines available. For price and terms, address Elbert Miller, 314 W. 112th street, New York City.

No. 275 — Farm of 216 acres; located 2 miles from Ghent or Chatham, on line of N. Y. C., B. & A., H. & C. and Rutland R. R.; 1 mile from school; 2 miles from churches; 3 miles from Borden's milk station. Nearest large village, Chatham, population, 2,251; also 12 miles from city of Hudson, population, 12,000. Highways, good. Surface, some level, some rolling and some hilly. Soil, black and gravelly loam. Acres tillable, 200; balance, mostly wooded, some good oak and pine timber. Fruit, about 350 fruit trees of all kinds. Best adapted to rye, oats and corn, hay and potatoes. Fences, mostly woven wire, some board and stone wall, in good condition. House, 19 rooms, 3 hills, separate apartments for owner and farmer, in excellent condition. Fine large shade trees. Outbuildings: main barn, side hill, 58x40; carriage house and horse stable, 72x24; cow stable, 60x22; sheep stable, 28x24; hen and tool house, 23x14; corn house and workshop, 24x22; garage, 20x17; hog house, 20x15; ice house, 15x15; smoke house, 11x9; wood house, 22x14; all in fine condition. Watered by running water in barns, 3 wells and 3 streams, and 2 cisterns. Have dam built across one small stream forming a nice ice pond. R. F. D. and telephone lines available. This property is 4 miles from the Hudson river and 7½ miles from Kinderhook Lake. This is not an abandoned farm, but is well adapted for stock farm. Reason for selling, owner engaged in other business. For price and terms, address Elbert Miller, 314 W. 112th street, New York City.

No. 276 — Farm of 212 acres; located 1½ miles from Ghent P. O., R. D. 2; 1½ miles from railway station at Ghent,

on line of Harlem R. R. and Hudson branch of B. & A. R. R.; ¾ mile from school; 1½ miles from Protestant churches; 3 miles from butter factory and milk station. Roads, good and a little hilly. Nearest village, Chatham, population, 2,251, 4 miles distant, by rail and good highway. Surface, part hilly and part level. Soil, gravelly loam and slate; 65 acres of meadow; 50 acres of natural pasture; 15 acres of timber, mostly second growth, including 5 acres of pine; acres tillable, 150. About 100 bearing apple trees, and several plum, peach and pear trees. All kinds of crops seem to do fairly well. Fences, mostly wire, some stone wall. There are two complete sets of buildings, near enough for convenience. The two houses are 1½ stories, in fair condition. One 2-story barn, and plenty of other barns and buildings for convenience and comfort, all in good condition, mostly newly roofed. House has water piped from spring; barns, piped from spring and running stream; fields have several springs. The Catskill Mountains are in full view from the piazza, and any part of farm, about 10 miles distant; the Hudson river about same distance. This farm is one of the best watered in this section; water from never-failing spring is piped to the house, barn yard and poultry yard. Telephone in house, and R. D. passes door. The farm is practically divided by the Harlem R. R. One set of buildings each side. It is particularly adapted to stock, especially sheep. Occupied by owner, and has been for 33 years. Reason for selling, owner's desire to retire. Price, \$9,000. Terms, one-half cash, balance mortgage, 5%, term of years. Address Delmer Kisselburgh, Ghent, N. Y.

*No. 277 — Farm of 270 acres; located 2 miles from Philmont P. O., R. D. 2 and railway station, on line of Harlem R. R., 1 mile from school, 2 miles from churches. Highways, good. Surface of farm, some level and some rolling. Soil, slate rock, loam and limestone. Acres in natural pasture, 20; acres in timber, 100. Acres tillable, 150. Fruit, pears, plums, cherries and apples. Adapted to general farming. Fences, stone, rail and wire. House, 40x42, with 8 rooms, good condition. Outbuildings: barn, 32x53; wagon house, 24x22; basement barn and

* Indicates farm is in hands of agent or real estate dealer.

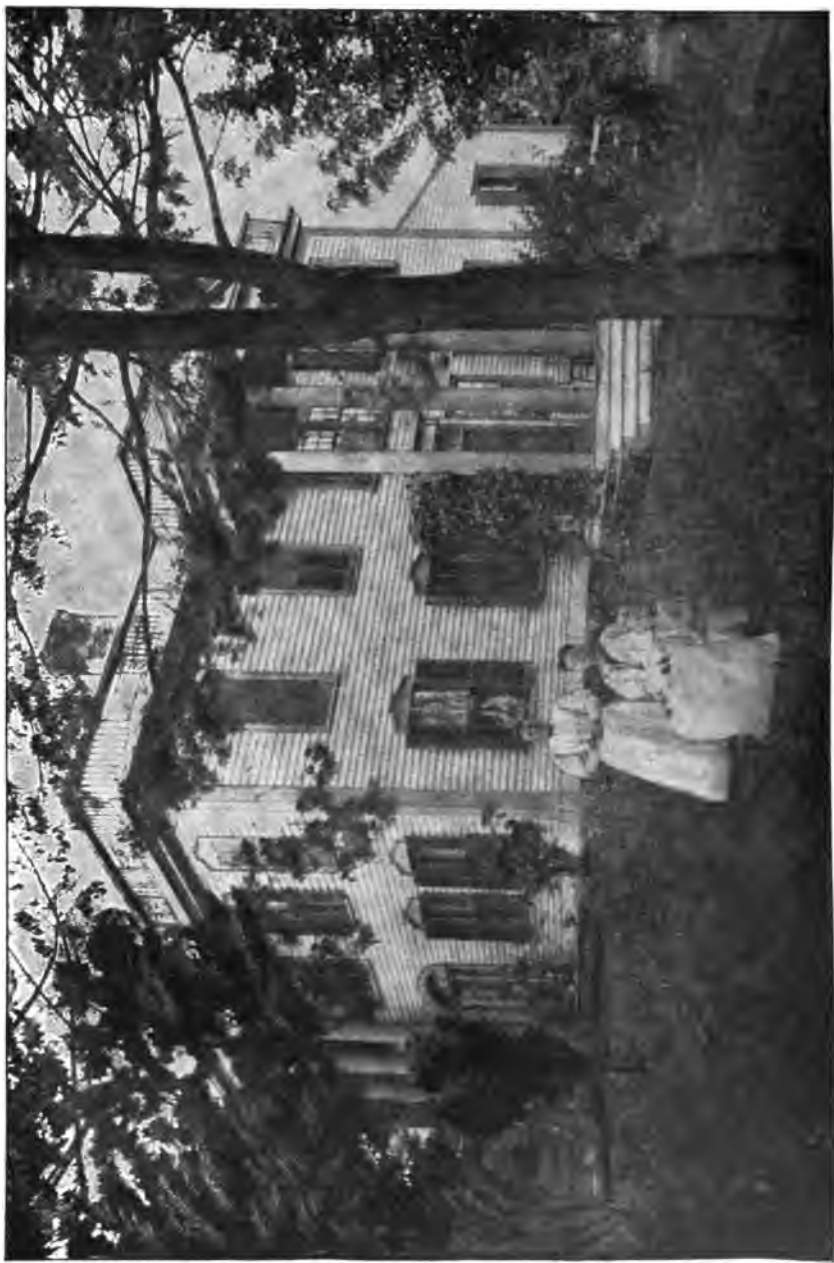
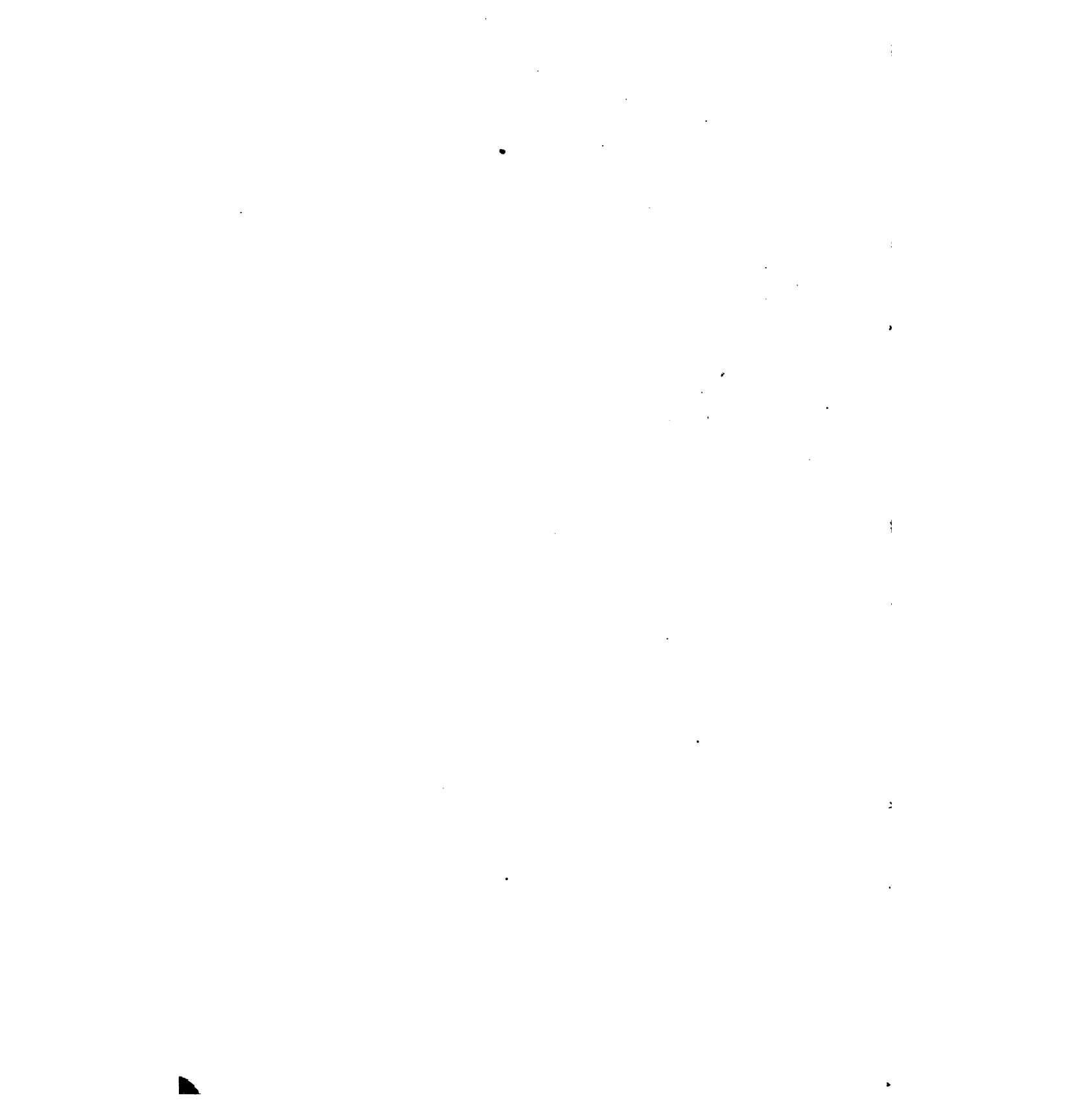


FIG. 118.—HOUSE ON FARM NO. 275, TOWN OF GHENT, COLUMBIA COUNTY.



wagon house, nearly new, milk, hen and hog houses. Watered by running water. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,200. Terms, \$2,900 cash. Address Walter B. Vail, agent, 469 State St., Schenectady, N. Y.

No. 278 — Farm of 143 acres; located 2 miles from Stockport P. O., R. D. No. 1 and railway station, on line of Albany & Southern R. R., $\frac{1}{4}$ mile from school and Protestant church, 3 miles from butter factory and milk station. Highways, good. Nearest city, Hudson, 7 miles distant, reached by highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 100; in natural pasture, 10; in timber, 33, mostly pine. Acres tillable, 110. Fruit, apples. Best adapted to hay and grain. Fences in good condition. House, 30x50, good condition. Outbuildings: barn, 40x70, good condition, and hog pen. Watered by spring. Unoccupied. Reason for selling, owner has too much land. Price, \$7,500. Terms, one-half cash. Address Theodore Isbister, Ghent, N. Y. R. D. No. 1.

No. 279 — Farm of 172 acres; located $1\frac{1}{2}$ miles from Stockport P. O. and railway station, on line of Albany & Southern R. R., $1\frac{1}{2}$ miles from school and Reformed church, $3\frac{1}{2}$ miles from butter factory and milk station. Highways, somewhat hilly. Nearest city, Hudson, 7 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 100; in natural pasture, 6; in timber, 12, pine and oak. Fruit, 75 apple trees. Best adapted to hay, corn and oats. Fences, mostly woven wire, fair condition. House, 25x40, stone, good condition. Outbuildings: new barn, 40x52; new hog pen and cow shed; also wood house, wagon house and corn house, in good condition. Watered by spring and cistern. Occupied by tenant. Reason for selling, owner has too much land. Price, \$10,000. Terms, one-third down. Address Solomon Sharp, Stuyvesant Falls, N. Y. Owner will rent.

No. 280 — Farm of 84 acres; located $2\frac{1}{2}$ miles from Stockport P. O., R. D. 1 and railway station, on line of Albany & Southern R. R., $2\frac{1}{2}$ miles from butter

factory and milk station, church next to farm. Highways, good. Nearest city, Hudson, 7 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 40; in natural pasture, 10; in timber, 5, mostly hard wood. Acres tillable, 79. Fruit, pears and apples. Adapted to hay and all kinds of grain. Fences in fair condition. House, 20x30, poor condition. Barn, 30x50, new. Watered by well, springs and creek. Unoccupied. Reason for selling, to close an estate. \$3,500. Terms, cash. Address Chas. Whitbeck, Hudson, N. Y.

TOWN OF GREENPORT

Population 1,639

No. 281 — Farm of 140 acres; located 2 miles from city of Hudson, on line of N. Y. C & H. R. R. R., $\frac{1}{4}$ mile from school, 2 miles from churches, 2 miles from milk station. Highways in good condition. Surface of farm, part practically level, rises from river by terraces. Soil, sandy and gravelly loam. Acres in meadow, 40; in timber, 25, oak, maple, hemlock, chestnut, red cedar, pine, hickory, ash and basswood. Fruit, apples, peaches, plums, pears, cherries and grapes. Best adapted to all kinds of grain, hay, vegetables, berries, etc. Fences, wall, rail and wire. House, 20 rooms, 2 stories, fair condition. Outbuildings: corn house, wagon house and horse barn combined; barn, 24x42; barn, 16x90; barn, 28x64; barn, 22x64, and tool house. Watered by well and springs. Occupied by owner. Reason for selling, advanced age and ill health of owner. For price and terms, address D. Wm. Lawrence, Lock Box 224, Hudson, N. Y. Owner will rent.

TOWN OF HILLSDALE

Population 1,504

* No. 282 — Farm of 225 acres; located $1\frac{1}{2}$ miles from P. O. and station at Hillsdale, on the line of the Harlem R. R.; $1\frac{1}{2}$ miles from school; $1\frac{1}{2}$ miles from churches, Methodist and Presbyterian; $1\frac{1}{2}$ miles from milk station. Has State road within $\frac{1}{4}$ mile of farm. Nearest village, Hillsdale, population 800, $1\frac{1}{2}$ miles distant, reached by highway. Surface, rolling. Altitude, between 900 and 1,000 feet. Soil, slate-stone loam. 150 acres in meadow; 50

* Indicates farm is in hands of agent or real estate dealer.

acres in natural pasture; 25 acres in timber of chestnut and oak; 175 acres tillable. Fruit consists of 20 pear trees, 30 apple trees, cherries, plums, grapes, etc. Land best adapted to hay and grain crops. Fences, stone wall, wire and rail, in fair condition. House, 2 stories, 6 rooms, in fair condition. Barn with basement, room for 25 head of stock, wagons, hay, grain, etc. House has well water, barns spring water and fields have springs. Copake Lake is 4 miles distant. Farm is occupied by tenant. Reason for selling, owner wishes to retire. Price, \$4,500. Terms, \$700 cash, mortgage of \$3,800 may remain 10 years at 5%. Address Herbert Eggleston, Millerton, N. Y.

* No. 283 — Farm of 167½ acres; located 3½ miles from Hillsdale P. O. and 3½ miles from station at Philmont, on the line of the Harlem R. R.; ¼ mile from school; ½ mile from Methodist church; 1 mile from German Lutheran church; ½ mile from milk station. Highways, good. Surface, rolling. Nearest town, Philmont, population, 1,813, distant 3½ miles by highway. Altitude, about 800 feet. Soil, slate and loam. 125 acres of meadow, 11 acres of natural pasture, 30 acres of timber, chestnut and oak; acres tillable, 136½. Fruit consists of 50 apple, 12 cherry, 35 plum, 5 peach and 21 pear trees. Land is adapted to hay and grain. Fences, stone wall and wire, in good condition. Main house 20x40, addition 18x35 and 12x20, 2 stories, 14 rooms. Main barn 40x60, horse barn 26x40, hog house, corn house. House watered from spring, barns by stream, fields by stream and springs. Occupied by owner. Reason for selling, owner desires to purchase place in village. Price, \$4,000. Terms easy. Address Herbert Eggleston, Millerton, N. Y.

* No. 284 — Farm of 111 acres; 2 miles from Craryville P. O. and station, on line of Harlem R. R.; ½ mile from school; 2 miles from Methodist and Baptist churches; 2½ miles from milk station. Highways, good. Nearest village, Philmont, population 1,813, distant 5 miles, by highway and rail. Surface, level. Soil, black loam. Altitude, about 500 feet. 100 acres of meadow, 11 acres of timber, 100 acres tillable. Fruit consists of 100 apple, pear, cherry and plum

trees, and berries. Land best adapted to raising of fruit and vegetables. Fences, wire and rail, in good condition. Large house, with addition 22x14, containing 12 rooms, all in good condition. Barn with basement containing stable room for 20 head of stock; wagon house and poultry house. House is watered by spring, barn by spring, fields by springs. Occupied by owner. Reason for selling, owner wishes to retire. Price, \$4,500. Terms, \$1,500 cash. Address Herbert Eggleston, Millerton, N. Y.

No. 285 — Farm of 140 acres; 5 miles from Hillsdale P. O. and railway station on Harlem Division of N. Y. C. R. R.; ½ mile from school; 2½ miles from churches; 2½ miles from cheese factory and milk station; R. D. and telephone connections. Highways, good and level. Nearest city, Hudson, population about 12,000, distant 16 miles, reached by rail and highway. Occupied by owner. Surface of farm, rolling. Soil, slate loam. Acres in meadow, 30 to 40; timber, 35, oak and chestnut; acres tillable, 100. Fruit, apples, plums, grapes, pears and peaches, fine variety. Adapted to hay, potatoes and all kinds of grain. Fences, rail and wall. House, 48x30, in good condition. Outbuildings, all in good condition. 1,000 feet above sea level; the best of air and finest spring water. An ideal summer residence. Price, \$3,000. Terms, easy. Address Judson Wiley, Hillsdale, N. Y.

No. 286 — Farm of 42 acres; located 2½ miles from Hillsdale P. O.; 2½ miles from railway station, on line of N. Y. C. R. R. at Hillsdale; 5 miles from cheese factory; 2½ miles from condensing plant. Highways, good. Soil, limestone. Good orchard. Best adapted to corn, oats, rye and potatoes. Good-sized house. Good-sized barn. Reason for selling, advanced age of owner. Price, \$1,500. Terms, ½ down. Address James Ward, Hillsdale, N. Y.

* No. 287 — Farm of 4½ acres; located 1 mile from Hillsdale P. O.; 1 mile from railway station at Hillsdale, on line of N. Y. C. R. R.; ½ mile from school; ¾ mile from churches. Highways, good. Nearest large village, Hillsdale, population 400. Surface, level. Acres tillable, 2. Fruit, 50 apple trees, pears and

* Indicates farm is in hands of agent or real estate dealer.



FIG. 119.— BUILDINGS ON FARM NO. 275, TOWN OF GHENT, COLUMBIA COUNTY.



FIG. 120.— HOUSE ON FARM NO. 274, TOWN OF GHENT, COLUMBIA COUNTY.

plums. House of 12 rooms, in excellent condition. Watered by well and stream. This property is located 1 mile from Berkshire Hills and 4 miles from Prospect Lake. Occupied by tenant. It is located on main State road from Hudson to Great Barrington, Mass., near a nice stream of water. Standing high and dry, its location cannot be excelled. Price, \$2,500. Terms, cash. Owner will rent. Address William A. Mallery, Hillsdale, N. Y.

* No. 288 — Farm of 10 acres; located $1\frac{1}{2}$ miles from Hillsdale P. O.; $\frac{1}{2}$ mile from railway station; $\frac{1}{2}$ mile from school; 1 mile from churches; $1\frac{1}{2}$ miles from butter and cheese factory. Nearest large village, Great Barrington, Mass., population 5,000. Highways, good. On State road leading from Great Barrington, Mass., to Hudson, N. Y. Surface, rolling. Soil, loam. Acres in meadow, all; acres tillable, all. Fruit, 60 pear trees, apples and cherries. Adapted to all general crops. Fences, wall and rail. House, 18x24, $1\frac{1}{2}$ story, in good condition. Outbuildings, in good condition; barn, 20x30; shed, 24x14. Watered by well, spring and stream. This property is 3 miles from Prospect Lake. Occupied by tenant. Reason for selling, owner has other business. Price, \$2,000. Terms, $\frac{1}{2}$ down, balance on mortgage. Address W. A. Mallery, Hillsdale, N. Y.

* No. 289 — Farm of 178 acres; located $1\frac{1}{2}$ miles from Hillsdale P. O.; $1\frac{1}{2}$ miles from railway station, on line of N. Y. C. R. R.; $1\frac{1}{2}$ miles from school; $1\frac{1}{2}$ miles from churches; $1\frac{1}{2}$ miles from butter factory and milk station. Highways, good. Nearest large village, Great Barrington, Mass., population 5,000. Surface, rolling. Soil, loam and limestone. Acres tillable, 158; 20 acres of chestnut, pine and oak timber. Fruit, 100 apple trees, pears and plums. Best adapted to rye, corn, oats, potatoes, hay. Fences, wall, rail and some wire, in good condition. House, 40x45, in excellent condition. Outbuildings, 2 barns, one 86x40 and other 24x40; large wagon house and sheds; tenant house, 24x40. Watered by wells, springs and streams. Occupied by tenant. Reason for selling, owner has other business. Price, \$10,000. Terms, easy. Address W. A. Mallery, Jr., Hillsdale, N. Y.

* No. 290 — Farm of 4 acres; located 1 mile from Hillsdale P. O.; 1 mile from railway station; 1 mile from churches; 1 mile from butter factory and milk station. Highways, good; on State road leading from Great Barrington, Mass., to Hudson, N. Y. Nearest large village, Great Barrington, Mass., population 5,000. Surface, level. Good limestone soil. Acres in meadow, all; acres tillable, all. Fruit, about 20 apple trees. Best adapted to hay and garden truck. Fences, good. House, 40x24, $2\frac{1}{2}$ stories, in excellent condition. Outbuildings, good. Watered by wells, spring and streams. This property is 6 miles from Copake Lake and 4 miles from Prospect Lake. Occupied by tenant. Reason for selling, owner has other business. Price, \$2,500. Terms, easy. Address W. A. Mallery, Hillsdale, N. Y.

* No. 291 — Farm of 116 acres; located $1\frac{1}{2}$ miles from Hillsdale P. O.; $1\frac{1}{2}$ miles from railway station at Hillsdale, on line of Harlem R. R.; 1 mile from school; $1\frac{1}{2}$ miles from churches of all denominations and milk station. Highways, good. Nearest village, Philmont, 10 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,200 feet. Soil, gravelly loam. Acres in meadow, 65; in natural pasture, 25; in timber, 26; acres tillable, 65. Fruit, apples, pears, peaches, plums, cherries and small fruits. Best adapted to fruit and grain. House, $1\frac{1}{2}$ stories, 5 rooms, in good condition. Cow barn, horse stable, room for hay, grain, etc., in good condition. Watered, house by well, barns by springs, fields by springs and streams. Near the Berkshire Hills. Occupied by tenant. Reason for selling, owner lives in New York. Price, \$2,500. Terms, $\frac{1}{2}$ cash. Address Herbert Eggleston, agent, Millerton, N. Y.

No. 292 — Farm of 140 acres; located 4 miles from Hillsdale P. O., R. D. 1; 4 miles from railway station at Hillsdale, on line of Harlem R. R.; $1\frac{1}{16}$ mile from school; $1\frac{1}{16}$ mile from Methodist church; $\frac{1}{2}$ mile from butter factory; 4 miles from milk station. State road. Nearest village, Chatham, population 2,251, 10 miles distant, reached by rail or highway. Surface of farm, rolling. Soil, lime. Acres in meadow, 60; in natural pasture, 40; in timber, 10, white pine

* Indicates farm is in hands of agent or real estate dealer.

and hemlock; acres tillable, 125. Fruit, apples. Best adapted to grass, corn, oats and rye. Fences, wire, with some stone wall. House, 2 stories, 35x22, with wing, in fine condition. Barn, 62x30; wagon house, 40x28; hay barn, 25x20; grain building, 20x18; hog house, 25x18; ice house. Watered, house by well and cistern, barns by well with wind mill, fields by creek. Five miles from Prospect Lake, Mass. Pleasant place for a residence. Reason for selling, to close estate. Price, \$8,000. Address Austin Morey estate, Hillsdale, Columbia County, N. Y. Owners will rent.

TOWN OF KINDERHOOK Population 2,947

No. 293 — Farm of 125 acres; located $1\frac{1}{2}$ miles from Kinderhook P. O.; $1\frac{1}{2}$ miles from railway station at Kinderhook, on line of A. & S. R. R.; $1\frac{1}{2}$ miles from school, Reformed church and 3 churches of other denominations; 3 miles from butter factory; 4 miles from milk station. Highways, good. Nearest city, Hudson, population 12,000, 14 miles distant, reached by rail or highway. Surface, mostly level, some rolling. Soil, sandy loam. Acres in meadow, 20; in natural pasture, 10; in timber, 5, hardwood, oak, ash, locust for posts; acres tillable, 100. Fruit, 400 apple trees in full bearing, cherries, pears, grapes; young orchard of 500 trees, beginning to bear. Best adapted to potatoes, corn, oats, rye. Fences, mostly wire, in good condition. House, 30x40, with wing, 15x15; water, bath and telephone, in good condition; tenant house, 24x30; 2 barns, 30x40; stable and wagon house, 40x20; shed and cow stable, 30x50; corn house and wagon house, 20x24. Watered, house by well and cistern, barns by wells, fields by springs and running stream. Three miles from Kinderhook Lake. Ten miles from Hudson River; 14 miles from Catskill Mountains. Occupied by owner. Reason for selling, owner wishes to locate in the city. Price and terms on application. Address A. M. Snyder, Valatie, N. Y., R. D.

No. 294 — Farm of 200 acres; situated within the incorporated village of Kinderhook, population about 1,000. Fertile, productive soil. Albany Southern Railway Station about $\frac{3}{4}$ mile from farm, hourly train service. Churches, high school, grange and stores within easy walking distance. State road. Vil-

lage has 5 miles of concrete sidewalks and streets are lighted by electricity. Farm contains about $\frac{1}{2}$ bottom land or creek flats, which produce large crops of corn, hay, grain, etc. Wood enough for home use. Good pasture. Kinderhook Creek flows through the farm. Abundance of springs, giving unlimited water supply. Trout pond and springs from which water is supplied by hydraulic ram to house and barns. Three hundred and fifty young apple trees just in bearing; 750 young trees planted recently; 500 pear trees in bearing; other fruit for home use. House, 13 rooms, 200 years old; bath and heat, excellent repair. Nine-room cottage for farm help. Ample barns, including 3 silos; stable room for 200 head of cattle, storage room for hay, grain and farm tools. For price and further particulars, address Wm. B. Van Alstyne, Kinderhook, N. Y.

No. 295 — Farm of 190 acres, located $2\frac{1}{2}$ miles from Valatie P. O., R. D. 1, and railway station, on line of A. & S. Ry.; $2\frac{1}{2}$ miles from High School, Catholic and Protestant churches. Highways in good condition. Nearest city, Albany, 16 miles distant, population about 100,000, reached by rail and highway. Occupied by owner. Surface of farm nearly level. Soil, clay loam and sand. Acres in meadow, 63; in timber, 12, white and yellow pine, white and black oak and maple. All tillable except timber land. Fruit, 500 apple trees, also a few peaches, pears, cherries and grapes. Best adapted to grain, corn and hay. Fences, American wire, Knox wire, good condition. House, 2 stories, 18 rooms, piazza, good condition. Outbuildings, barn 50x60, hip roof, good. Watered by well, cistern and brook. This farm is $2\frac{1}{2}$ miles from Kinderhook Lake. Price, \$10,000. Terms, one half down, remainder on mortgage. Reason for selling, ill health of owner. Address Katharine M. Pruyn, Valatie, N. Y., R. D. 1. Owner will rent.

No. 296 — Farm of 155 acres; located $2\frac{1}{2}$ miles from Valatie P. O., R. D. 1, and railway station, on line of Albany & Southern Ry.; 3 miles from railway station, at Niverville, on line of Boston & Albany R. R.; $2\frac{1}{2}$ miles from school and Protestant churches; $2\frac{1}{2}$ miles from milk station. Highways, good, partly State road. Surface of farm, level. Good soil. Acres in meadow, 45; in

natural pasture, 8; in timber, 8; mostly oak. Acres tillable, 140. Fruit, 500 apple trees, a few pears and plums. Fences, wire, good. House 40x65, tenant house 24x35, both in good condition. Outbuildings, large barn, cow barn, horse stable, hog pen, hen house, wagon house, corn house, ice house, creamery, shop and shed, in good condition. Watered, house and barn by well and cistern, fields by brook. Occupied by tenant. Reason for selling, to close an estate. Price, \$10,000. Terms, 50% cash, balance on first mortgage. Address F. A. Witbeck, 3411 Ft. Independence St., New York City, N. Y.

*No. 297 — Farm of 190 acres; located 3 miles from Valatie P. O., R. D. 1, and 3 miles from railway station at Kinderhook, on line of Albany Southern R. R.; 3 miles from churches and schools. Highways, good. Surface of farm, rolling. Altitude, 500 ft. Soil, sandy and clay loam. Acres in meadow, 50; in natural pasture, 30; in timber, 15; hard and soft wood. Acres tillable, 150. Fruit, 12 acres orchard, mostly apples, some pears and peaches. Best adapted to rye, oats, corn, grass, potatoes and fruit. Fences, wood and wire, fair condition. House, 14 rooms, first-class condition. Outbuildings: large barn, newly roofed, first-class condition, some other outbuildings. Watered, house, by well and cistern; barns, by brook; fields by springs and brook. This farm is 3 miles from Kinderhook and Knickerbocker Lakes. Occupied by owner. Reason for selling, advanced age of owner. Price, \$12,000. Terms easy. Address Rural Life Co., Kinderhook, N. Y.

No. 298 — Farm of 25 acres; located 1 mile from Valatie P. O., R. D. 1; $\frac{3}{4}$ mile from railway station at Valatie, on line of Albany Southern R. R.; 1 mile from school, Catholic and Protestant churches. Highways, excellent, just off State road. Nearest cities, Hudson, 16 miles, and Albany, 18 miles, reached by Albany Southern electric road, B. & A. R. R. and State road. Surface of farm, rolling. Altitude, 300 ft. Soil, sandy loam. All tillable. Fruit, 100 bearing apple trees, 1,000 young apple trees, 200 pear trees. House recently burned. Barn 30x50, nearly

new. Watered by well and springs. Worked by owner. Reason for selling, owner has other business. Price, \$4,000. Terms easy. Address Rural Life Co., Kinderhook, N. Y.

*No. 299 — Farm of 104 acres; located 3 miles from Valatie P. O., R. D. 1, and railway station on line of Albany Southern R. R.; 3 miles from school, Catholic and Protestant churches. Highways, good. Nearest city, Albany, 15 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 300 ft. Soil, 30 or more acres rich, heavy loam, balance Kinderhook fruit land. All tillable. Fruit, 70 apple trees, full bearing, 600 trees planted 3 years, 500 trees planted 2 years. Best adapted to fruit and general farming. House, 8 rooms, excellent condition. Outbuildings: new side hill barn and other outbuildings in excellent condition. Watered, house and barn by well, fields by springs. Occupied by owner. Price, \$7,000. Terms, easy. Address Rural Life Co., Kinderhook, N. Y.

*No. 300 — Farm of 112 acres; located 2 miles from Niverville P. O. and railway station, on line of B. & A. and Albany Southern Rys.; $1\frac{1}{2}$ miles from school and Protestant church. Highways in excellent condition. Nearest city, Albany, 14 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, sandy loam. Acres tillable, 100. Fruit, old apple orchard and 200 young trees just bearing. House, 12 rooms, first-class condition. Outbuildings: hay and grain barn, new rat proof granary, cow and horse stable, shed, wagon house, ice house and cold storage, two poultry houses and workshop. Watered, house by well and running water, barns by running water, fields by lake and springs. This farm is near Kinderhook Lake. Occupied by owner. Reason for selling, owner desires smaller place. Price, \$6,500. Terms, easy. Address Rural Life Co., Kinderhook, N. Y.

*No. 301 — Farm of 100 acres; located 2 miles from Kinderhook P. O., R. D. 1, and railway station, on line of Albany Southern R. R.; 2 miles from school, milk station, Catholic and Protestant churches. Highways in ex-

* Indicates farm is in hands of agent or real estate dealer.

cellent condition. Nearest city, Hudson, 10 miles distant, reached by rail and highway. Surface of farm, hilly. Altitude, 500 ft. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 10; in timber, 5. All tillable except pasture and woodland. Fruit, 500 young trees, set 2 years. Best adapted to grass, grain and fruit. Fences in fair condition. House, 10 rooms, newly decorated. Outbuildings: large barns and complete set of outbuildings. Watered by springs. Occupied by owner. Reason for selling, owner in other business. Price, \$8,000. Terms, \$1,400 may remain on mortgage at 5%. Team, tools and equipment included in price. Address Rural Life Co., Kinderhook, N. Y.

TOWN OF LIVINGSTON

Population 1,620

No. 302 — Farm of 275 acres; 8 miles from Hudson; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from churches; $3\frac{1}{2}$ miles from creamery. Highways, good. Nearest city, Hudson, population 12,000, 8 miles. Surface features, level. Nature and quality of soil, loam. Acres in meadow, 200; natural pasture, 75; all tillable. Fruit, about 500 apple trees. Best adapted to hay, grain, potatoes and dairying. Thirty cows on farm at present. Fences, wire and good. House, 2 stories, basement, 10 rooms. Outbuildings: 3 barns, 62x52, 45x38, 46x32, good condition. Watered, house by well; barns and fields, by well and springs. Reason for selling, advanced age of owner. Price, about \$11,000. Address W. S. Wattles, Box 124, Hudson, N. Y.

*No. 303 — Farm of 240 acres; located 5 miles from Claverack P. O. and railway station, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school; 2 miles from churches. Nearest city, Hudson, 7 miles distant, reached by highway. Surface of farm, rolling. Soil, loam and limestone. Acres in meadow, 120; in natural pasture, 110; in timber, 10. Acres tillable, 220. Fruit, apples, pears, etc. Best adapted to grass, grain, fruit or dairying. Fences, wire, good condition. House, large, good condition, also tenement house. Outbuildings, 3 large barns, in good condition. Occupied by tenant. Reason for selling, owner has other business. Price, \$65 per acre. Terms, $\frac{1}{2}$ cash. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

TOWN OF NEW LEBANON

Population 1,378

*No. 304 — Farm of 144 acres; located $1\frac{1}{2}$ miles from Brainard P. O.; $1\frac{1}{2}$ miles from railway station at Brainard, on line of Rutland Division of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches. Highways, good, near State road. Nearest city, Pittsfield, population 25,000, 12 miles distant, reached by rail or highway. Surface, nearly level. Altitude, 1,000 feet. Soil, loam. Acres in meadow, 100; in natural pasture, 20; in timber, 24, oak, chestnut, hickory; acres tillable, 100. Fruit, 75 apple trees, peaches, plums, cherries and pears, also small fruits. Adapted to all crops grown in this climate. Fences, wire and rail. House, 2 stories, 14 rooms, high ceiling, in good condition. Barns, 26x65, 36x36; shed, 50x12, loft over shed; all in good condition. Watered, house by running spring, barns by spring. Four miles from Lake Tassawassa. Occupied by owner. Reason for selling, owner wishes to engage in other business. Price, \$4,000. Terms, \$2,000 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

No. 305 — Farm of 103 acres; located $\frac{1}{2}$ mile from New Lebanon P. O.; $\frac{1}{2}$ mile from railway station at New Lebanon, on line of Rutland R. R.; $\frac{1}{2}$ mile from school; $\frac{3}{4}$ mile from Congregational church; $2\frac{1}{2}$ miles from butter factory. State road. Nearest city, Pittsfield, population 25,000, 11 miles distant, reached by rail or highway. Surface of farm, level. Altitude, 400 feet. Soil, gravelly loam. Acres in meadow, 80; in natural pasture, 20; in timber, 3, hardwood; acres tillable, 90. Fruit, 300 apple trees, 75 cherry trees, 22 plum trees and 12 pear trees. Adapted to all crops grown in this climate. Fences, wire, in good condition. House, 35x50, 13 rooms, water in house, steam heat, with shed. Barns, 80x25, 40x50; horse stable, 30x40; ice house, wood shed, hen houses, pig house. Watered, house by well, barns, by water piped to barns, fields by brook and spring. Wyomonoek Creek passes through farm. Occupied by owner. Sixty acres of mountain pasture and wood will be included. Price, \$10,000. Terms, part cash. Address Chas. Spencer, New Lebanon, N. Y.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 121.— ORCHARD ON FARM NO. 307, TOWN OF STUYVESANT, COLUMBIA COUNTY.



FIG. 122.— HOUSE ON FARM NO. 307, TOWN OF STUYVESANT, COLUMBIA COUNTY.

No. 306 — Farm of 60 acres; located 1 mile from village of West Lebanon, post-office, hotel, church and school; $\frac{1}{2}$ mile from State road running from Albany; 12 miles from Chatham, on line of Rutland R. R.; $\frac{1}{2}$ mile from railway station and on R. D. and telephone line. Thirty acres in meadow; in pasture, 15; in timber, 15, pine, chestnut and hemlock. Farm keeps 6 cows and team. Fruit, 50 bearing apple trees, also pears, plums and grapes. House, $2\frac{1}{2}$ stories, 15 rooms. Outbuildings, wood house, wagon house, corn house, hog and chicken house with large barn, 20x40, and shed attached, all in good condition. Watered by well and springs. Price, \$2,200. Terms, $\frac{1}{2}$ down, balance on bond and mortgage. Address H. J. Gibson, West Lebanon, N. Y.

TOWN OF STUYVESANT

Population 1,980

*No. 307 — Farm of 270 acres; located 1 mile from Newton Hook P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from Catholic and Protestant churches; 2 miles from school; 3 miles from milk station. Highways in excellent condition. Nearest city, Hudson, 8 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 300 feet. Soil, sandy and clay loam. Acres in meadow, 100; in natural pasture, 50; in timber, 50, heavy. Acres tillable. Fruit, large orchard of apples and pears, crop being sold annually for \$2,000 to \$3,000. Best adapted to fruit, rye, oats, corn, potatoes, etc. Fences, good, mostly wire. House, 14 rooms. Outbuildings, private stable, carriage house, greenhouse and chicken house for owner's use; also complete set of farm barns and outbuildings. Watered, house and barns by windmill from never-failing spring, fields by springs. This property is on the east bank of the Hudson River. Reason for selling, to close an estate. Price, \$30,000. Terms, \$20,000 down, remainder may be left on mortgage. Address Rural Life Co., Kinderhook, N. Y.

TOWN OF TAGHKANIC

Population 771

*No. 308 — Farm of 175 acres; located $1\frac{1}{2}$ miles from Craryville P. O. and station on the line of the Harlem R. R.; 1 mile from school and Baptist church

and nearest milk station. Highways, good. State road passes farm. Nearest city, Hudson, population 12,000, distant 12 miles, reached by both rail and highway. Surface, rolling. Soil, loam. One hundred and thirty acres in meadow; 25 acres in natural pasture; 20 acres in timber, chestnut and oak; 130 acres tillable. The apple crop averages about 60 barrels per year, with plenty of other fruit for house use. Land is adapted to corn, oats, rye and all farm produce. Fences are of wire and rail. One and one-half story house, in good condition. Horse barn and wagon house, 24x36; hay and cow barn, basement stable, 36x54; all barns in good condition. Watered, house by well, barn by tank in yard, fields by springs and brook. Copake Lake is $2\frac{1}{2}$ miles distant. Occupied by owner's people. Reason for selling, owner is not a farmer, and his people are getting old. Price given on application. Terms, easy. Address Miles L. Jenks, Millerton, N. Y.

*No. 309 — Farm of 140 acres; located 2 miles from Churchtown P. O., and 5 miles from station at Claverack, on line of B. & A. R. R.; 1 mile from school; 2 miles from Lutheran and Methodist churches; 5 miles from milk station and condensing plant. Highways, good. Nearest city, Hudson, population, 12,000, distant 8 miles, reached by rail or highway. Surface, rolling. Soil, limestone. Altitude, about 600 feet; 125 acres in meadow; 15 acres of timber; 125 acres tillable. Fruit consists of 100 apple, pear, cherry and plum trees. Land is adapted to corn, rye, oats, buckwheat, etc. Fences are rail and stone wall, in good condition. House, 30x40, with addition, 12x14, 2 stories, containing 8 rooms. Main barn, 40x60; sheds, 15x20; wagon house, 20x30. House has well water; barns, watered by stream; fields, by springs and stream. Occupied by owner. Reasons for selling, old age of owner. Price, \$2,500. Terms, \$1,000 down and balance on mortgage. Address Herbert Eggleston, Millerton, N. Y.

MISCELLANEOUS

*No. 310 — At Harlemville, N. Y., farm of 140 acres; 100 acres tillable land; 25 acres pine, oak and chestnut wood; 15 acres of pasture land. Farm watered by

* Indicates farm is in hands of agent or real estate dealer.

brooks and springs. One and one-half story house, 9 rooms, painted white, good shade. One hundred apple trees, a few pears, cherries and plums. Barn, 30x40; cow and sheep barn, 24x50; hay

barn, 24x36; poultry house, 10x20; corn house, 12x18; pig pen, 16x24; work shop, 20x24; buildings, all in good condition. Price, \$3,000. Address H. L. Reed, agent, Amsterdam, N. Y.

CORTLAND COUNTY

Area, 485 square miles. Population, 29,249. Annual precipitation, 48.41 inches. Annual mean temperature, 47.7° Number of farms, 2,610. Average price of land, including buildings is \$31.73 per acre. County seat, Cortland.

This county lies in the central part of the state.

Its surface is hilly, rolling, and in places broken, consisting mostly of arable ridges with rich valleys between. The highlands are divided into general ridges extending north and south through the county. The northern part of the county spreads out into a high plateau broken by hills. The drainage is nearly all through the Tioughnioga River, which flows southward centrally through the county. The county is well watered, naturally drained. The soil upon the hills is principally a sandy and gravelly loam; that in the valleys the same general character with a large mixture of disintegrated slate, shale and limestone. This is a distinctively agricultural county, although carriage, wirecloth and wagon manufacturing is quite extensive. Like most of the counties of New York State the ample railroad and transportation facilities bring it within easy reach of great markets. There is considerable timber scattered throughout the county, but not in large tracts. There are many maple groves from which sugar is made, the amount being given as 25,381 gallons of syrup and 118,550 pounds of sugar. There are 2,444 farms reporting domestic animals as follows: dairy cows, 27,427; horses, 7,033; swine, 5,233; sheep, 3,616; poultry, 153,550; production of milk was 15,743,198 gallons, with total receipts of sale of dairy products of \$1,578,776. The leading crops are corn, 74,105 bushels; oats, 396,974 bushels; barley, 23,348 bushels; buckwheat, 110,793 bushels; potatoes, 750,187 bushels; hay and forage, 130,414 tons. Churches and schools abound throughout the county. A state normal school is located at Cortland. This school with the 145 district schools, graded and high schools in villages give the amplest educational facilities. Twenty-five agricultural organizations are devoted to the interest of the farmer and sixty well-located dairy stations and factories are found. Apples and other orchard fruits are successfully raised throughout the county. There is an increase of 19.6 per cent. over the value of farm property in the last decade. This increase is largely represented by live stock, machinery and implements. The price of land has declined eighty-three cents per acre in ten years, but the farm buildings are worth, \$1,360,000 more than in 1900. The next few years will undoubtedly change these statistics, because of the greater demand for New York farm lands which is increasing every year.

TOWN OF CININNATUS

Population 965

No. 311 — Farm of 300 acres; located 2 miles from East Freetown P. O., railway station at Cincinnatus, 3 miles distant, on line of Lackawanna R. R., also rural free delivery to farm from Cincinnatus, $\frac{3}{4}$ mile from school, 3 miles from churches, butter factory, cheese factory and milk condensing plant, 2 miles from milk station. Highways, good. Nearest city, Cortland, 14 miles distant, reached by railroad. Surface of farm, sloping. Altitude, 1,600 ft. Soil, gravelly loam. Acres in meadow, 100; in natural pasture, 180; in timber, 20, mostly beech.

Acres tillable, 100. Best adapted to dairying. Fences, wire, good condition. House, 30x45, fair condition. Outbuildings: fine, new barn, 60x100, cement floor in basement; also new 160 ft. shed. Watered by spring and brook. Occupied by tenant. Reason for selling, owner has other business. Price, \$5,000. Terms, part payment down, balance on time. This farm will keep 35 or 40 cows. Address Walter S. Bull, Cortland, N. Y.

TOWN OF CUYLER

Population 881

*No. 312 — Farm of 388 acres; located 3 miles from Cuyler P. O. and railway

* Indicates farm is in hands of agent or real estate dealer.



FIG. 123.—BUILDINGS ON FARM NO. 307, TOWN OF STUYVESANT, COLUMBIA COUNTY.



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station, on line of Lehigh Valley R. R., 50 rods from school, 3 miles from churches, $\frac{1}{2}$ mile from creamery. Highways, hilly but good. Nearest large village, De Ruyter, 4 miles distant, reached by highway. Surface of farm, level and gently rolling. Soil, clay and black loam. Acres tillable, 170. Enough natural pasture for 75 head of cattle; acres in timber, 35. Fruit, 50 to 60 apple trees. Best adapted to dairying and general farming. Fences, mostly wire, good. House, 9 rooms, good. Outbuildings: basement barn, 60x40, with stables for 100 head of cattle; ice house, hog and hen house. Watered, house and barn, by running water; fields, by brooks. Occupied by owner. Reason for selling, owner wants a smaller place. Price, \$14,000. Terms, \$5,000 down. Price includes 60 head of cattle, 7 horses and large list of tools and implements, nearly all new. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

* No. 313—Farm of 225 acres; located 1 mile from Cuyler P. O. and railway station, on line of Lehigh Valley R. R.; 1 mile from school, churches and milk station. Highways, practically level, good. Nearest large village, De Ruyter. Surface of farm, rolling. Soil, shale gravelly loam. Acres in meadow, 75; in timber, 25, second growth. Acres tillable, 150. Fruit, 45 apple trees, also some pears and plums. Best adapted to dairying and general farming. Fences, in good condition. House, 2 stories, 14 rooms. Outbuildings, basement cow barn, 30x80; horse barn, 24x36; tool house, 20x36; hen house, 10x20. Watered by well. Occupied by owner. Price, \$7,300. Terms, \$3,500 down. Price includes 25 Holstein cows, 2 horses and wagons, tools and crops. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

TOWN OF FREETOWN

Population 551

No. 314—Farm of 165 acres; located 2 miles from East Freetown P. O., R. D. No. 1, and railway station, on line of D., L. & W. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches, butter factory, cheese factory and milk station. Highways, good. Nearest city, Cortland, 13 miles distant, reached by rail and highway. Surface of farm, generally rolling.

Altitude, about 1,200 feet. Soil, loam. Acres in meadow, 40; in natural pasture, 85; in timber, 35, ash, maple, beech and basswood. Acres tillable, 80. Fruit, 25 apple trees. Best adapted to grass and all grains except wheat. Fences, wire, board and rail, good condition. House, 10 rooms. Outbuildings, cow barn, 36x56 with basement; horse barn, 26x36; granary, 16x16. Watered, house by well, barns and fields by creek. Occupied by tenant. Reason for selling, poor health of owner. Price, \$4,000. Terms, \$1,500 cash, balance 12 or 15 years. Address Geo. Carter, Marathon, N. Y.

TOWN OF HOMER

Population 3,891

* No. 315—Farm of 150 acres; located $3\frac{1}{2}$ miles from Homer P. O., R. D. 7, and railway station, on line of D., L. & W. Ry.; $\frac{1}{4}$ mile from school; $3\frac{1}{2}$ miles from Catholic and Protestant churches and milk station; $6\frac{1}{2}$ miles from milk condensing plant. Highways, somewhat hilly but good. Nearest large village, Homer, $3\frac{1}{2}$ miles distant; nearest city, Cortland, $6\frac{1}{2}$ miles distant, reached by highway. Surface of farm, nearly level. Altitude, about 1,100 feet. Soil, gravel loam. Acres in meadow, 85; in natural pasture, 55; in timber, 10, second growth beech and maple; acres tillable, 135. Fruit, fine apple orchard, also plums and cherries. Best adapted to hay, grain, potatoes, cabbage and corn. Fences, mostly wire, good condition. House, 10 rooms, good. Outbuildings, barn, 26x124; silo, 22 stanchions; 3 box stalls, also room for 4 horses. Watered by well, spring and brook. Occupied by owner. Reason for selling, owner desires to retire from business. Price, \$5,000. Terms, \$2,250 cash, balance on mortgage at 5 per cent. Address W. G. Crandall, agent, Homer, N. Y.

* No. 316—Farm of 179 acres; located $3\frac{1}{2}$ miles from Homer P. O., R. D. No. 7, from Cortland; $3\frac{1}{2}$ miles from railway station at Homer, on line of D., L. & W. R. R.; 1 mile from school; $3\frac{1}{2}$ miles from churches, butter factory, cheese factory and milk station; $6\frac{1}{2}$ miles from milk condensing plant. Highways somewhat hilly but good. Surface of farm, two-thirds practically level, balance tillable. Altitude, 1,200 feet. Soil,

* Indicates farm is in hands of agent or real estate dealer.

mostly gravel loam. Acres in meadow, 100; in natural pasture, 79; in timber, 25, maple and beech. Acres tillable, 100. Fruit, 4 acre apple orchard in fine bearing. Best adapted to general farming and dairying. Fences, wire, good. House, 1½ stories, 11 rooms, good inside. Outbuildings, cement floor in cow barn, 26x100; also good-sized horse barn, hay barn and silo. Watered, house and barn by piped spring, fields by brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,500. Terms, \$2,000 down, balance at 5%. Address Crandall's Real Estate Agency, Homer, N. Y.

* No. 317 — Farm of 147 acres; located 2 miles from Scott P. O., R. D. No. 1, from Homer; 4½ miles from railway station at Homer, on line of D., L. & W. R. R.; 50 rods from school; 2 miles from churches and butter factory; 4½ miles from milk station; 7 miles from milk condensing plant. Highways, improved State road to Homer. Nearest city, Cortland, 7 miles distant, reached by railroad or trolley from Homer. Surface of farm, about 100 acres level, 7 acres side hill. Altitude, about 1,100 feet. Soil, gravel loam. Acres in meadow, 75; in natural pasture, 32; in timber, 40, maple basswood, beech and hemlock. Acres tillable, 100. Fruit, apples and pears for home use. Best adapted to hay, grain, cabbage, potatoes and dairying. Fences, mostly wire, fair condition. House, 2 stories, 10 rooms, good condition. Outbuildings, cow barn, 30x70 with ell 30x40; new hog house, 20x24. Watered, house and barn by pipe from spring, fields by creek. A trout stream runs near eastern boundary of farm. Occupied by owner. Reason for selling, owner wishes to retire. Price, \$9,000. Terms, \$4,500. Address Crandall's Real Estate Agency, Homer, N. Y.

TOWN OF LAPEER

Population 475

No. 318 — Farm of 136 acres; ½ mile from Hunt's Corners P. O.; 3½ miles from Marathon railway station, on D., L. & W. R. R. Soil, loamy and good. Barn, 36x80, new and in good condition, worth \$2,000 to build to-day. Fences, wire and rail, in good condition. Watered by spring. Only a few rods from creamery, school house, post-office and church.

This is a tenant farm, whose owners live in town. Price, \$35 per acre. Address Swift & Brink, Marathon, N. Y.

TOWN OF SCOTT

Population 718

* No. 319 — Farm of 584 acres; located 2 miles from Scott P. O., R. D. No. 1, from Homer; 4½ miles from railway station at Little York, on line of D., L. & W. R. R.; 1 mile from school; 2 miles from churches, butter factory and cheese factory; 4 miles from milk station. Highways, about 2 miles hilly, balance level. Nearest large village, Homer, 7½ miles distant, reached by highway. Surface of farm, about 400 acres; have been plowed and lays nicely. Altitude, 1,250 feet. Soil, gravel and clay loam. Acres in timber, 80, beech, maple, basswood and elm; all tillable except woodland. Fruit, over 100 apple trees, some plums and pears. Best adapted to hay, potatoes and stock raising. Fences, line fences good, others poor. House, 2 sets of buildings, one house, 2 stories, new, other house fair. Outbuildings, basement barn, 34x85; barn, 30x60; barn, 30x40; granary, henery, hog house and shop; basement barn floor needs cementing; no expensive repairs necessary. Watered, house by well, barns by spring, fields by spring, brook. This farm is 4 miles south of Skaneateles Lake, which furnishes water for Syracuse. Occupied by owner. Reason for selling, owner wants to move to distant city. Price, \$18 per acre. Terms, \$6,000 cash, balance at 5%. Address Crandall's Real Estate Agency, Homer, N. Y.

* No. 320 — Farm of 185 acres; located 1½ miles from Scott Village P. O., R. F. D. No. 1, from Homer; 8½ miles from railway station at Homer, on line of D., L. & W. R. R.; ¾ mile from school and Protestant churches; 1½ miles from butter factory, cheese factory; 8½ miles from milk station. Highways, somewhat hilly but good. Surface of farm, mostly flat, some rolling. Altitude, 1,000 feet. Soil, gravel loam. Acres in timber, 45, beech, oak, hemlock, chestnut and maple. Acres tillable, 140. Fruit for home use. Best adapted to potatoes, cabbage, oats and buckwheat. Fences, barbed wire. House, 12 rooms, needs new roof. Outbuildings, basement barn, 32x98, cement floor; barn, 26x36; also silo, hen and

* Indicates farm is in hands of agent or real estate dealer.

hog house. Watered by well, creek and trout brooks. This farm is $1\frac{1}{2}$ miles from Skaneateles Lake, from which Syracuse receives its water supply. Occupied by owner. Reason for selling, owner wants to retire. Price, \$4,000. Terms, half cash, balance easy. Address Crandall's Real Estate Agency, Homer, N. Y.

TOWN OF SOLON
Population 518

No. 321 — Farm of 148 acres; located $1\frac{1}{2}$ miles from Solon P. O.; $1\frac{1}{2}$ miles from railway station at Solon, on line of D., L. & W. R. R.; $\frac{3}{4}$ mile from school; $\frac{1}{2}$ mile from Baptist church; $1\frac{1}{2}$ miles from Catholic church; $1\frac{1}{2}$ miles from butter factory; 3 miles from cheese factory; $1\frac{1}{2}$ miles from milk station. Highways, hilly but good. Nearest village, McGrawsville, population 1,000, 4 miles distant, reached by rail and highway. Surface of farm, hilly and rolling. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 40; in natural pasture, 60; in timber, 48, beech, maple, ash and basswood; acres tillable, 80. Fruit, 100 apple trees, 20 pear trees and 10 plum trees. Best adapted to grass, potatoes, oats and buckwheat. Fences, mostly barbed wire, in fair condition. House, 20x28, 16x24, in fair condition. Barn, 40x60; good hog pen, 18x24, in good condition. Watered, house and barns by spring water, fields by living spring and brook. Occupied by tenant. Reason for selling, the farm is larger than the owner wishes, and he has other business. Price, \$2,500. Terms, 10 per cent. cash and 5 per cent. annually. Address M. C. Bean, McGrawsville, Cortland County, N. Y. Owner will rent for cash or with option to buy.

*No. 322 — Farm of 300 acres; located $\frac{3}{4}$ mile from Solon P. O., R. D.; $\frac{3}{4}$ mile from railway station at Solon, on line of D., L. & W. R. R.; $\frac{3}{4}$ mile from school, churches and milk station; 8 miles from condensing plant. Highways, good. State road half way to Cortland. Nearest city, Cortland, population 12,000, distant 8 miles, reached by rail or highway. Surface, $\frac{1}{2}$ slopes, balance table and river flats. Altitude, 1,100 feet. Soil, splendid producing loam. Acres in meadow, 75; in pasture, 125; in timber, 100, mostly maple and beech; acres tillable, 100. Fruit, good 15-year-old apple

orchard of 100 trees, plum orchard of 30 trees. Best adapted to potatoes, cabbage and grain. Fences, wire, in good condition. House, large old-fashioned house, in good condition. Good basement barns, 30x70 and 30x40; patent stanchions for 56 head; running water in front of stock; 50-ton granary opens into stable. Watered, house, by water piped to sinks, never fails; barns, by 3' cement troughs; fields, by never failing springs. Occupied by half owner. This place cuts about 100 tons of hay. Maple sugar grove and utensils and sugar house for 1,100 trees, should pay owner from \$300 to \$500 in syrup and sugar per annum. Reason for selling, to settle an estate. Price, \$6,500. Terms, part cash. Address Crandall's Real Estate Agency, Homer, N. Y.

No. 323 — Farm of 97 $\frac{1}{4}$ acres; located $1\frac{1}{2}$ miles from Solon P. O.; 2 miles from railway station at Solon, on line of D., L. & W. R. R.; 1 mile from school; 2 miles from Baptist church; $1\frac{1}{2}$ miles from Catholic church; 2 miles from milk station. Highways, good. Nearest large village, McGraw, 6 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam, clay sub-soil. Acres in meadow, 35; in natural pasture, 42; in timber, 20, beech, maple and basswood. Acres tillable, 50. Fruit, apples, pears, plums, cherries, currants and berries. Best adapted to oats, corn, barley, buckwheat, potatoes and cabbage. Fences, mostly wire, good condition. House, 10 rooms, good condition. Outbuildings, barn, 56x32, with basement; barn, 24x36; barn, 20x30, all in good condition, also hen house, 10x20. Watered by well, brook and springs. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$2,700. Terms, $\frac{1}{2}$ down, balance on time to suit purchaser. Address C. M. Alvord, Solon, N. Y.

No. 324 — Farm of 110 acres; located $1\frac{1}{2}$ miles from Solon, P. O.; 2 miles from railway station at Solon, on line of D., L. & W. R. R.; $\frac{1}{2}$ mile from school; 2 miles from milk station, Catholic and Protestant churches. Highways, somewhat hilly, but good. Nearest large village, McGraw, 6 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, good, some stone. Acres

* Indicates farm is in hands of agent or real estate dealer.

in meadow, 50; in natural pasture, 60; in timber, 15, hard maple. Acres tillable 75. Fruit, apples, pears and plums. Best adapted to potatoes, cabbage, corn, oats and hay. Fences, wire, good condition. House, 9 rooms, fair condition. Outbuildings, barn, 35x56; barn, 24x80, good condition. Watered, house and barns, by running water; fields, by springs. Occupied by owner. Reason for selling, owner wants to get a larger farm. Price, \$3,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Tools and buckets for sugar making included in price. Address Lewis Stafford, Solon, N. Y.

TOWN OF TRUXTON

Population 1,132

* No. 325 — Farm of 21 acres; located between Truxton and Cuyler P. O.; $2\frac{1}{2}$ miles from railway stations at Cuyler or Truxton, on line of Lehigh Valley R. R.; 1 mile from school; 2 miles from milk station. Highways, good country roads. Nearest large village, De Ruyter. Surface of farm, rolling; 5 acres river bottom. Soil, loam. Acres tillable, 19. House, 16 rooms, fair condition. Outbuildings, basement barn, 28x36; barn, 24x30; wagon sheds, fair condition. House watered by running water at door. Unoccupied. Reason for selling, owner lives elsewhere. Price, \$1,700. Terms, \$500 down. Owner will exchange for city property or good stock or bonds. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

TOWN OF VIRGIL

Population 1,136

*No. 326 — Farm of 198 acres; located $2\frac{1}{2}$ miles from Cortland P. O., R. D. 2, and railway station, on line of D. L. & W. R. R.; $\frac{3}{4}$ mile from school; 3 miles from churches; $2\frac{1}{2}$ miles from several milk stations and milk condensing plant. Highways, good. Surface of farm, 50 acres level, 98 acres rolling, 50 acres side hill. Altitude, 1,200 ft. Soil, gravel and clay loam. Acres in meadow, 75; in natural pasture, 90; in timber, 18; maple, beech, ash and basswood. Acres tillable, 140. Fruit, apples, cherries, grapes, etc. Best adapted to general grain including winter wheat. Fences, mostly wire and board, fair condition. House, 13 rooms, good condition, bath room, etc. Out-

buildings: basement barn 30x80 with cement floor, running water, barn 30x40, and other outbuildings. Watered, house by well, barn by running water, fields by spring and brooks. Occupied by owner. Reason for selling, owner wants smaller place. Price \$45 per acre. Terms, \$4,500 cash, balance easy at 5%. Address Crandall's Real Estate Agency, Homer, N. Y.

TOWN OF WILLETT

Population 643

No. 327 — Farm of 51 acres; located $2\frac{1}{2}$ miles from Willett P. O., R. D. 2; $3\frac{1}{2}$ miles from railway station at Gee Brook, on line of D., L. & W. R. R.; 2 miles from school; $2\frac{1}{2}$ miles from Methodist and Baptist churches; 7 miles from Catholic and Presbyterian churches; 2 miles from butter factory and cheese factory; 6 miles from milk station. Twenty-five miles from condensing plant. Highways, hilly, but good. Nearest village, Marathon, population, 1,100, 7 miles distant, reached by highway. Surface of farm, part rolling, part level. Altitude, 1,250 feet. Soil, loam. Acres in meadow, 25; in natural pasture, 25; in timber, 5, sugar maple, ash and cherry; acres tillable, 50. Fruit, 25 apple trees. Best adapted to grass, oats and potatoes. Fences, stone and rail, in good condition. House, 2 stories, 8 rooms. Barns, one 30x60, one 20x40; henhouses, one 12x30, one 12x16; all in good condition. Watered, house and barns, by good well; fields, by springs and brooks. Two miles from Otselec River. Occupied by tenant. Reason for selling, owner has another farm. Price, \$1,500. Terms, \$500 cash, balance on easy terms. Address John Flohavan, Lisle, N. Y.

No. 328 — Farm of 100 acres; located 5 miles from Marathon P. O., R. D. 1; 5 miles from railway station at Marathon or Gee Brook, on line of D., L. & W. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from Methodist Episcopal and Baptist churches; 5 miles from Catholic and Presbyterian churches; $2\frac{1}{2}$ miles from butter factory; 1 mile from cheese factory; 5 miles from milk station. Highways, hilly but good. Nearest village, Marathon, population 1,100, 5 miles dis-

* Indicates farm is in hands of agent or real estate dealer.



FIG. 124.—HOUSE ON FARM NO. 301, TOWN OF KINDERHOOK, COLUMBIA COUNTY.



FIG. 125.—HOUSE ON FARM NO. 317, TOWN OF HOMER, CORTLAND COUNTY.

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

3. The third part of the document is a list of names and addresses of the members of the committee.

4. The fourth part of the document is a list of names and addresses of the members of the committee.

5. The fifth part of the document is a list of names and addresses of the members of the committee.

6. The sixth part of the document is a list of names and addresses of the members of the committee.

7. The seventh part of the document is a list of names and addresses of the members of the committee.

8. The eighth part of the document is a list of names and addresses of the members of the committee.

9. The ninth part of the document is a list of names and addresses of the members of the committee.

10. The tenth part of the document is a list of names and addresses of the members of the committee.

tant, reached by highway. Surface of farm, one half hilly, one half level. Altitude, 1,120 feet. Soil, part gravel, part loam. Acres in meadow, 45; in natural pasture, 40; in timber, 15, sugar maple, ash, elm, basswood, hemlock; acres tillable, 75. Fruit, 20 apple trees and a few pear trees. Best adapted to grass, oats, corn, potatoes and buckwheat. Fences, wire and rail, in fair condition. House, 2 stories, 8 rooms on ground floor and 6 rooms

above, in good condition. Farm is on Bell telephone line. Barns: basement barn, 34x60; straw barn, 16x20; shed, 14x20; pig pen, 16x18; all in good condition. Watered, house, by 2 wells; barns, by brook; fields, by springs and brooks. One mile from Otselic River. Occupied by tenant. Reason for selling, death of owner. Price, \$3,000. Terms, \$1,500 cash. Address Mrs. Mary Foley, 110 Nichols Street, Utica, N. Y., c/o J. W. Richardson. Owner will rent.

DELAWARE COUNTY

Area, 1,580 square miles. Population, 45,578. Annual precipitation, 42.7 inches. Annual mean temperature, 45.7°. Number of farms, 5,044. Average price of farm land, including buildings, is \$26.65. County seat, Delhi.

Delaware stands the sixth largest county of the state and is located centrally, distant about seventy miles from Albany.

Its surface is a hilly and mountainous upland, divided into three general ridges by the valleys of the two branches of the Delaware River. In the southern part these ridges form a mountainous region, with high rocky peaks and wild narrow ravines. In the northern part the highlands are less wild and precipitous and the whole region assumes the character of a hilly upland. The soil is generally of a dark reddish color composed of disintegrated rock and shale. In the valleys are many strips of very fertile alluvium. There is considerable fine woodland on the higher portions of the county. The wells, springs, streams, rivers, ponds and lakes are very numerous and remarkable for their purity and clearness and are also noted for the enormous water power they afford.

Dairying is the principal pursuit and the county has become famous for its quality of butter. There are excellent facilities for transportation of all products to the markets of the state, the county being but a short distance from New York City. The valuation of farm property is placed at \$27,714,855, a 25 per cent. increase over that of 1900. Domestic animals are classified, dairy cows, 78,073; horses, 12,022; swine, 10,526; sheep, 9,302; poultry, 239,755; total product of milk, 41,144,471 gallons and total receipts from dairy products, \$4,724,951, these figures being excelled only by St. Lawrence County.

There are good lands in this county which can be purchased for an average price of \$23.88 per acre with fair to good buildings. The principal crops are as follows: corn, 45,785 bushels; oats, 337,938 bushels; buckwheat, 132,284 bushels; potatoes, 479,060 bushels; hay and forage, 247,773 tons. Apples are grown in abundance and are of the finest quality. Churches of different denominations are scattered throughout and 346 district schools are conveniently located. Twenty-four agricultural associations are devoted to the best interest of the farmer. There are 68 dairy stations and factories in the county averaging over three to each town. Forty-two miles of state road and 2,220 miles of improved highways furnish excellent local transportation facilities.

TOWN OF DAVENPORT

Population 1,427

No. 329 — Farm of 170 acres; located 1½ miles from West Kortright P. O.; 2½ miles from railway station at East Meredith, on line of U. & D. R. R.; ½ mile from school; 3 miles from Presbyterian and Methodist Episcopal churches; 1½ mile from milk station. Good country roads. Nearest city, Oneonta, population 10,000, 11 miles distant, reached by highway and railroad. Surface of

farm rolling. Altitude, 1,600 feet. Soil, hardpan and quite gravelly. Acres in meadow, 70; in natural pasture, 75; in timber, 25, hardwood; acres tillable 125. Fruit, 31 apple trees, choice varieties. Best adapted to grass, corn and all small grains. Fences, mostly stone and in fair condition. House, 30x30, with an addition, 10½x17½, with kitchen on back. House was built in 1900 and is in first-class condition. Main part and side wing 2 stories high and finished

mostly in oak and cherry. Barn, 40x90, with basement. Watered, house and barn, by running water; fields, by springs and brook. Two miles from Mud Lake. Occupied by owner. Reason for selling, advanced age of owner and difficulty of securing farm help. Price, \$6,500. Terms, \$3,000 cash, balance on mortgage. Address, James Fisher, West Kortright, N. Y.

No. 330 — Farm of 153 acres; located 2½ miles from P. O., mail delivered by stage, 5 miles from railway station at Oneonta and West Davenport, on line of U. & D. and D. & H. Rys.; 1 mile from school; 2 miles from churches; 2½ miles from butter factory. Highways generally good. Surface, part level and part rolling. Soil, mostly good. Acres in timber, 14; maple, chestnut, oak, ash and basswood. Fruit, apples, pears and cherries. Best adapted to potatoes, corn, grass, oats and buckwheat. Fences, wire and rail, good condition. House, 12 rooms, good condition. Outbuildings, comfortable and in good condition. Watered, house by well, barns by spring and brook. Occupied by owner. Reason for selling, advanced age and ill health of owner. Price, \$5,500. Terms, \$1,500 down and balance at 5%. Address Orrin Stewart, North Franklin, N. Y. Owner will rent.

TOWN OF DELHI

Population 2,815

No. 331 — Farm of 220 acres, 2½ miles from Delhi P. O. and railway station. Good soil. Acres of meadow, 60; pasture, 110; timber, 50. House of 11 rooms, in good condition, hot and cold water. Silo; barns, 100x46; wagon house, 40x60; granary; ice house; hen house; shop and smoke house. Watered by cold springs, with a fine trout brook running through premises. Fences, stone wall and wire, in good condition. The farm will keep 45 or 50 cows and has a good milk market near at hand. Price, \$7,000. Terms, \$3,000 on a 5% mortgage. Name and address of owner, Olive A. Benedict, Delhi, N. Y.

No. 332 — Farm of 80 acres; located 2½ miles from Delhi P. O., R. D. 3; 2½ miles from railway station at Delhi, on line of O. & W. R. R.; 1 mile from

school; 2½ miles from churches, butter factory and condensing plant. Highways, good. Nearest village, Delhi, population 2,000, 2½ miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,600 feet. Soil, red slate loam. Acres in meadow, 18 to 20; in natural pasture, 40; in timber, 20, cherry, basswood and other varieties; acres tillable, 25. Fruit, 20 apple trees, 2 pear trees, 2 plum trees and 2 cherry trees. Best adapted to hay, corn and grain. Fences, stone wall and barbed wire. House, 6 rooms, in fair condition. Barn, repaired last year, concrete floor in basement, 18 cow stalls, 3 horse stalls, hog house, hen house, shed. Watered, house and barn, by running water from spring; fields, by well. Farm borders on Little Delaware River. Farm will keep 15 cows and team. Can be made to keep more cows. First-class dairy farm. Occupied by owner. Reason for selling, to settle an estate. Price, \$2,000. Terms, \$500 cash, balance in monthly payments of \$12 with interest on unpaid principal at 5% or will sell farm, stock and tools for \$3,500. Terms, \$900 cash, balance in monthly payments of \$17 with interest at 5% on unpaid principal. Will sell stock and tools if desired. Address H. D. Archer, Delhi, N. Y.

*No. 333 — Farm of 252 acres; located 3 miles from Delhi P. O. and railway station, on line of O. & W. R. R.; ½ mile from school; 3 miles from milk station, Catholic and Protestant churches. Highways hilly but good. Surface of farm, rolling. Altitude, 1,700 feet. Soil, red slate. Acres in meadow, 40; in natural pasture, 112; in timber, 100, heavy. Acres tillable, 152. Fruit, apples, pears, plums, cherries, etc. Best adapted to grass, grain, etc. Fences, stone wall and wire. House, fair size, good condition. Outbuildings, large barn, wagon house, hen house, hog house and granary. Watered by springs. Occupied by owner. Reason for selling, owner a widow. Price, \$3,500. Terms, \$1,700 cash. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

*No. 334 — Farm of 70 acres; located 1½ miles from Delhi P. O. and railway station, on line of O. & W. R. R.; ½

* Indicates farm is in hands of agent or real estate dealer.

mile from school; $1\frac{1}{2}$ miles from milk station, Catholic and Protestant churches. Highways in good condition. Surface of farm, rolling. Altitude, 1,700 feet. Soil, red loam. Acres in meadow, 20; in natural pasture, 40; in timber, 10, hard wood. Acres tillable, 60. Fruit, apples, pears, etc. Best adapted to grain, grass, potatoes, etc. Fences, stone wall and wire. House, 12 rooms, new. Outbuildings, large barn in first-class condition, concrete floor, running water. Watered by springs and creek. Occupied by owner. Reason for selling, owner has other business. Price, \$7,000. Terms, part cash. Twenty high grade cows, 2 horses, farm tools, crops and wagons included in above price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

*No. 335 — Farm of 610 acres; located 5 miles from Delhi P. O. and railway station, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school; 5 miles from milk station, Catholic and Protestant churches. Highways somewhat hilly but good. Surface of farm, rolling. Altitude, about 1,800 feet. Soil, red loam. Acres in meadow, 200; in natural pasture, 200; in timber, 210, beech, maple, birch and ash. Acres tillable, 200. Fruit, apples. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, 10 rooms, good condition. Outbuildings, 2 cow barns, 2 hay barns, hog pen and hen house, good condition, also furnished camp house and camp barn. Watered by spring and creek. This farm is 1 mile from Lake Delaware. Occupied by owner. Reason for selling, owner a lawyer and cannot look after farm. Price, \$11,000. Terms, \$3,500 cash, balance on mortgage. Tools for sugarmaking included in above price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

TOWN OF FRANKLIN.

Population 2,403

No. 336 — Farm of 116 acres; located 2 miles from railway station at Franklin, on line of O. & W. R. R.; $1\frac{1}{2}$ miles from school; 1 mile from Protestant church and butter factory; 2 miles from milk station; 7 miles from milk condensing plant. Highways, somewhat

hilly, but good. Nearest large village, Walton, 7 miles distant, population, about 4,000, reached by rail and highway. Surface of farm, rolling. Altitude, about 2,400 feet. Soil, red slate. Acres in meadow, 25; in natural pasture, 75; in timber, 16, cherry, maple, beech and birch; acres tillable, 60. Fruit, 20 apple trees. Best adapted to potatoes, buckwheat, oats, corn, etc. Fences, barbed wire and stone wall, fair condition. House, 26x26, fair condition. Outbuildings, barn, 40x46, fair condition, chicken house, 10x12. Watered by well and spring. Occupied by tenant. Reason for selling, owner has another farm. Price, \$2,400. Terms, \$200 down. Address E. M. Ogden, Walton, N. Y. Owner will rent.

No. 337 — Farm of 100 acres; located $2\frac{1}{2}$ miles from Oneonta and North Franklin P. O.; $2\frac{1}{2}$ miles from railway station at Oneonta, on line of D. & H. and U. & D. railroads; 500 feet from school; $2\frac{1}{2}$ miles from churches, butter factory and milk station. Highways good. Surface of farm, rolling. Soil, loam. Acres in meadow, 35; in natural pasture, 45; in timber, 20; about 60 acres tillable. Fruit, 42 apple trees, young but in full bearing. Best adapted to potatoes, oats, corn, wheat, rye and buckwheat. Fences, mostly wire, some stone, first-class condition. House, 10 rooms, newly renovated. Outbuildings, horse barn, 40x28; cow barn, 60x40, with shed attached, 50x20; tool house, 35x22; hen house, 12x20; hen house, 6x7, all in good condition. Watered by pumps and springs. Occupied by owner. Reason for selling, owner in other business. Price, \$2,300. Terms, \$1,000 cash, remainder on mortgage. Address Clara L. McCammon, Oneonta, N. Y.

TOWN OF HAMDEN

Population 1,373

No. 338 — Farm of 160 acres; located 4 miles from Delancey P. O.; R. D. 1, and railway station, on line of Ontario & Western R. R.; 20 rods from school; 4 miles from churches; 10 rods from butter factory; 5 miles from milk and condensing plant. Highways hilly but good. Nearest large village, Delhi, 9 miles distant, reached by rail and highway. Surface of farm sloping and level.

* Indicates farm is in hands of agent or real estate dealer.

Altitude, about 1,200 feet. Soil, loam and gravel loam. Acres in meadow, 50; in natural pasture, 90; in timber, 20, beech, maple, ash, birch and cherry. Acres tillable, 100. Fruit, apples. Best adapted to corn, oats, buckwheat, potatoes, rye, hay, etc. Fences, wire and stone wall, good condition. House, 8 rooms, built in 1912. Outbuildings, barn, 30x52, with annex 12x40, built in 1911; shed; hen house; silo, 12x24; wagon house, 30x32, good condition. Watered by springs. Occupied by owners. Reason for selling, poor health. Price, \$5,350. Terms, \$2,000 down, balance on easy payment at 5% interest. Address T. J. Neish, Delancey, N. Y., R. F. D. 1.

TOWN OF HANCOCK

Population 5,191

No. 339 — Farm of 127 acres; located ¼ mile from French Woods P. O., 4 miles from railway station at Lordville, on line of Erie R. R.; ¼ mile from school, Catholic and Protestant churches; 4 miles from milk station. Highways, good dirt road. Nearest large village, Hancock, 8 miles distant, population about 2,500, reached by highway. Surface of farm, rolling. Altitude, about 1,200 feet. Soil, red shell, very good. Acres in meadow, 25; in natural pasture, 60; in timber, 15, hardwood. Acres tillable, 100. Fruit, large orchard of apples, pears and plums. Best adapted to hay, potatoes, etc. Fences, wire and stone, fair condition. House, almost new, 29 rooms. Outbuildings, good sized barn, good condition. Watered, house by running water, barns by spring, fields by lake. Ninety-six acres in lake and ⅓ of it belongs to this property. Reason for selling, owner wants to work at his trade. Toilet and bathroom in house. Price, \$8,500. Address Frank L. Gardner, French Woods, N. Y.

TOWN OF HARPUERSFIELD

Population 1,244

No. 340 — Farm of 252½ acres; 1 mile from Harpursfield P. O.; 4 miles from railway station at Stamford, on line of U. & D. R. R.; 12 miles from Richmondville, on D. & H.; 20 miles from Oneonta; ¼ mile from school; 1 mile from churches; 3 miles from butter factory; 2 miles from milk station. Highways, fairly good, not hilly. State road to be

built ½ mile from farm. Nearest village Stamford, 1,000 population, 4 miles distant; Oneonta, nearest city, population 10,000. Former reached by highway, latter by rail and highway. Surface of farm, partly rolling, partly level. Soil, good for grass. Acres in meadow, 70; in pasture, 150; in timber, 35, beech, maple, pine and hemlock; acres tillable, 150. Fruit, good young apple orchard, pears. Best adapted to grass, oats, potatoes, rye and buckwheat. Fences, mostly stone wall, in good condition. House, large 12-room, in good condition. Barns, 2 large cowbarns, horsebarn, calfstable, hogpen, granary and tool house. Buildings newly painted. Watered, house, by well; barn, by well and springs; fields, by creeks and springs. Delaware river 4 miles distant. Catskill mountains 5 miles distant. Possession given at any time. Will sell cows, team, tools and crops, or farm alone to suit buyer. Hay, straw and all fodder belongs to owner of farm and will be sold with farm, if purchaser desires, and owner will also sell as much of personal property as desired. Reason for selling, advanced age of owner. Price, \$6,000. Terms, part cash, balance to suit buyer. Clear title guaranteed. Address owner, M. S. Wilcox, Jefferson, N. Y. Owner will rent for cash, on shares or with option to buy.

No. 341 — Farm of 140 acres; located ¼ mile from Stamford P. O. and ½ mile from railway station at Stamford, on line of U. & D. R. R.; ½ mile from school, churches, butter factory and milk station. Highways, State road. Nearest city, Oneonta, population about 10,000, 33 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,800 feet. Soil, red rock mostly. Acres in meadow, about 30; in natural pasture, 35; in timber, 15, maple and beech. Acres tillable, 65. Fruit, an old and young orchard. Best adapted to hay, grain and gardening. Fences, mostly stone, fair condition. House, medium size, rather old. Outbuildings, good size barn with silo, good condition. Watered by springs and stream. Occupied by owner. Reason for selling, owner in other business. Price, \$6,500. Terms, ½ down, balance on bond and mortgage. Address John P. Grant, Stamford, N. Y.

TOWN OF KORTRIGHT

Population 1,481

No. 342 — Farm of 189 acres; located 2½ miles from South Kortright P. O., R. D. No. 1 and railway station, on line of U. & D. R. R.; ⅓ of mile from school; 2½ miles from churches; 6 miles from butter factory; 1½ miles from one creamery and 2½ miles to another. Highways, somewhat hilly, but good. Nearest city, Oneonta, 26 miles distant, reached by rail and highway. Surface of farm, meadows level and rolling. Altitude, about 1,900 ft. Soil, slate and loam. Acres in meadow, 74; in natural pasture, 90; in timber, 25, mostly maple and beech. Acres tillable, 140. Fruit, 100 apple, 5 plum, 2 cherry, 2 pear trees and 1 grape vine. Best adapted to hay, corn, oats, buckwheat, rye and potatoes. Fences, stone wall and wire. House, 28x46, 2 stories, good condition. Outbuildings, barn, 36x56; barn, 18x28; horse barn, 30x50; hog house, 20x26, and hen house 10x16. Watered, house and barn have water piped from spring; fields, by springs and creeks. Occupied by owner. Reason for selling, owner wants to get smaller place. Price and terms given upon application. Address A. T. Dunn, South Kortright, N. Y.

* No. 343 — Farm of 303 acres; located 3 miles from Bloomville P. O. and railway station, on line of U. & D. R. R.; ½ mile from school; 3 miles from churches and milk station. Highways, somewhat hilly, but good. Nearest city, Oneonta, 17 miles distant, reached by rail. Surface of farm, rolling. Altitude, 2,000 ft. Soil, rich loam. Acres in meadow, 80; in natural pasture, 160; in timber, 63, hard wood. Acres tillable, 240. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire. House, 12 rooms, fair condition. Outbuildings, 2 large barn, good condition. Watered, house and barns by spring; fields, by creek. Occupied by owner. Reason for selling, owner wishes to go west. Price, \$14,000. Terms, part cash. Seventy head of cattle, wagons, tools, crops, 4 horses and machinery included in price. Address E. Brionne & Co., agents, 23 Duane street, New York, N. Y.

* No. 344 — Farm of 300 acres; located 3 miles from Kortright Center

P. O.; 3 miles from railway station at Kortright, on line of U. & D. R. R.; 1 mile from school; 2 miles from church; 3 miles from milk station. Highways, somewhat hilly, but good. Nearest city, Oneonta, 13 miles distant, reached by rail. Surface of farm, rolling. Altitude, 2,000 ft. Soil, red slate. Acres in meadow, 80; in natural pasture, 125; in timber, 60. Acres tillable, 225. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences stone wall and wire, fair condition. House, large, good condition. Out buildings, large barn, wagon house, hen house, hog house and storage house. Watered, house and barns, by spring; fields, by creek. Occupied by owner. Reason for selling, ill health of wife of owner. Price, \$8,000. Terms, ½ cash. Twenty-five cows, 15 head young stock, 2 horses, all farm tools, crops, wagons, sleighs, etc., included in price. Address E. Brionne & Co., agents, 23 Duane street, New York, N. Y.

* No. 345 — Farm of 400 acres; located 4 miles from Bloomville P. O. and railway station, on line of U. & D. R. R.; 4 miles from Methodist church and milk station. Highways, somewhat hilly, but smooth. Nearest city, Oneonta, 19 miles distant, reached by rail. Surface of farm, rolling. Altitude, 2,000 ft. Soil, red slate. Acres in meadow 100; in natural pasture, 250; in timber, 50, hard wood. Acres tillable, 250. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire. House, 9 rooms, good condition. Outbuildings, large barn, good condition. Watered by springs. Occupied by owner. Reason for selling, ill health. Price, \$13,000. Terms, part cash, balance easy. About 50 cows, 4 horses, all crops, tools, wagons, etc., included in price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

* No. 346 — Farm of 122 acres; located 2 miles from Bloomville P. O. and railway station, on line of U. & D. R. R.; ½ mile from school; 2 miles from milk station and Protestant churches. Highways, hilly, but good. Nearest city, Oneonta, 17 miles distant, reached by rail. Surface of farm, rolling. Altitude, 1,700 ft. Soil, loam. Acres in meadow, 30; in natural pasture, 80; in timber, 12, hard wood. Acres tillable, 110.

* Indicates farm is in hands of agent or real estate dealer.

Fruit, apples, pears, plums etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, 10 rooms, new. Outbuildings, fine large barn concrete floors, etc. Watered by springs and creek. Occupied by owner. Reason for selling ill health. Price, \$8,000. Terms, part cash. Thirty-five head of cattle, 2 horses, wagons, tools, crops etc., included in price. Address E. Brionne & Co., 23 Duane street New York N. Y.

*No. 347 — Farm of 300 acres; located $1\frac{1}{2}$ miles from South Kortright P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from milk station and Protestant church. Highways good. Nearest large village, Delhi, 10 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,600 feet. Soil, loam. Acres in meadow, 90; in natural pasture, 160; in timber, 60, hard wood. Acres tillable, 240. Fruit, apples, pears, etc. Best adapted to grass, grain, etc. Fences, stone wall and wire. Five houses, one large, 14 rooms, first-class condition, others smaller but good. Outbuildings, 3 large barns with stables for 100 cows, large silo. Watered by spring and creek. This farm is $\frac{1}{2}$ mile from Delaware river. Occupied by owner. Reason for selling, owner has other business. Price, \$21,000. Terms, \$7,000 cash, balance on easy terms. About 50 cows, 4 horses, all tools, crops, etc., included in price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

TOWN OF MASONVILLE

Population 1,053

*No. 348 — Farm of 100 acres; located $3\frac{1}{2}$ miles from Masonville P. O.; 8 miles from railway station at Sidney, on line of D. & H. and O. & W. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from churches and from butter and cheese factories. Highways, hilly, in good condition. Nearest village, Sidney, population 3,000, 8 miles distant, reached by highway. Surface, rolling. Acres in meadow, 50; in natural pasture, 40; in timber, 10; acres tillable, 90. Fences, poor. Eight-room house, poor condition. Outbuildings in poor condition. Watered, running water; fields, by springs.

Unoccupied. Reason for selling, owner has other business. Price, \$950. Terms, \$600 cash, mortgage for \$450. Address F. L. Ostrander, agent, Masonville, Delaware county, N. Y. Owner will rent.

*No. 349 — Farm of 75 acres; located $3\frac{1}{2}$ miles from Masonville P. O.; 9 miles from railway station at Sidney, on line of the D. & H. and O. & W. R. R.; near school; $3\frac{1}{2}$ miles from churches; $3\frac{1}{2}$ miles from butter and cheese factories. Highways, hilly, but in good condition. Nearest large village, Sidney, population 3,000, 9 miles distant, reached by highway. Surface, rolling and partially hilly. Acres in meadow, 25; in natural pasture, 40; in timber, 10; acres tillable, 60. Fences, wire and stone walls, in good condition. House, 8 rooms, fair condition. Barn room for 15 cows and 3 horses. Watered, house, by running water and wells; fields, by springs. Occupied. Reason for selling, owner has other business. Price, \$1,150. Terms, \$500 cash, balance on mortgage at 5%. Address F. L. Ostrander, Masonville, Delaware county, N. Y.

No. 350 — Farm of 122 acres; located 6 miles from Afton P. O. and railway station, on line of D. & H. R. R.; 1 mile from school; 6 miles from churches; $1\frac{1}{2}$ miles from milk station. Highways somewhat hilly but good. Surface of farm, level and rolling. Good soil. Acres in meadow, 50; in natural pasture, 57; in timber, 15, hard wood. Acres tillable, 100. Fruit, good apple orchard. Best adapted to corn, oats and potatoes. Fences, wire, fair condition. House, $1\frac{1}{2}$ stories, 8 rooms, in need of repairs. Outbuildings, basement barn with inside silo, good condition; horse barn in need of some repairs. Unoccupied. Reason for selling, owner lives too far away to attend to farm. Price, \$1,500. Easy terms. Address John W. Van Cott, Unadilla, N. Y. Owner will rent.

No. 351 — Farm of 15 acres; located 1 mile from Unadilla P. O., R. D. 2; 4 miles from railway station at Maywood, on line of O. & W. R. R.; $1\frac{1}{2}$ miles from school; 2 miles from cheese factory and Protestant churches; 4 miles from milk station and milk condensing

* Indicates farm is in hands of agent or real estate dealer.



FIG. 126.— BUILDINGS ON FARM NO. 316, TOWN OF HOMER, CORTLAND COUNTY.



FIG. 127.— BARN ON FARM NO. 312, TOWN OF CUYLER, CORTLAND COUNTY.

1. The first part of the document is a list of names and addresses of the members of the committee.

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plant. Highways, good. Nearest large village, Sidney, 7 miles distant, reached by rail and highway. Surface of farm level. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 8; in natural pasture, 7. Acres tillable, 15. Fruit, 9 apple trees. Best adapted to truck gardening and grass. Fences, wire, stone wall and rail, good condition. House, small, 4 rooms below, upper part not finished. Outbuildings, good sized barn, fair condition, hen house and granary. Watered, house, by well; barn, by spring; fields, by creek. Occupied by owner. Reason for selling, owner a widower and obliged to break up housekeeping. Price, \$900 cash, or \$1,100 with payment of \$600 cash and remainder on mortgage. Address E. A. Fletcher, Hamilton, N. Y. Owner will rent.

TOWN OF MEREDITH

Population 1,393

No. 352 — Farm of 173 acres; located 7 miles from Delhi P. O., R. D. 2; 3 miles from railway station at East Meredith, on line of U. & D. R. R.; 3 miles from church; 1 mile from butter factory and milk station; 7 miles from milk condensing plant. Nearest city, Oneonta; population 10,000, 12 miles distant. Surface of farm, rolling. Altitude, about 1,800 feet. Acres in meadow, 50; in natural pasture, 80; in timber, 43, hard wood; acres tillable, 120. Fruit, apples. Best adapted to hay and potatoes. Fences, stone and wire, good condition. House, 16 rooms, good condition. Barns, in fair condition. Watered by living spring. Occupied by owner. Reason for selling, poor health of owner. Price, \$6,500, including hay, stock, etc. Address Miss Johanna R. Spier, Delhi, N. Y., R. D. 2.

TOWN OF SIDNEY

Population 4,148

No. 353 — Farm of 135 acres; located $\frac{1}{4}$ mile from post office and railway station at Franklin Depot, on line of O. & W. R. R.; $\frac{1}{4}$ mile from school and 2 creameries; $2\frac{1}{2}$ miles from condensing plant. Highways, good. Nearest large village, Walton, population 3,500, 10 miles distant, reached by rail and highway. Sidney Center, population 600, is $2\frac{1}{2}$ miles from farm. Sidney, population about 3,000, is 10 miles

distant from farm. Surface, nearly level, part slightly rolling. Soil, red and part rich loam. Acres in meadow, 45; in natural pasture, 55; in wood lot, 35; acres tillable, 100. Fruit, apples. Best adapted to grass, oats, corn, buckwheat, millet and potatoes. Fences, wire, board and stone wall. House, 12 rooms, good condition. Outbuildings: barn, 42x64, cow stable attached, with new concrete floors; barn, 26x36, wagon house attached, 5 good horse stalls, silo. Watered, house by never-failing spring water, which runs to house; barns and fields, by spring and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,800. Terms, \$800 cash, balance on easy terms, 5%. Address M. B. Fish, Sidney, N. Y.

TOWN OF STAMFORD

Population 2,113

*No. 354 — Farm of 155 acres; located 4 miles from Hobart P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; 4 miles from churches and milk station. Nearest city, Oneonta, 30 miles distant, reached by rail. Surface of farm, rolling. Soil, red loam. Acres in meadow, 40; in natural pasture, 60; in timber, 55, hard wood. Acres tillable, 80. Fruit, apples, pears and plums. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, 9 rooms, good condition. Outbuildings: barn 36x66, wagon house, hen house and hog house, all in good condition. Watered by springs and creek. Occupied by owner. Reason for selling, advanced age and poor health of owner. Price, \$7,500. Terms, \$3,000 cash, balance easy. 25 cows, 2 horses, wagons, farming tools and crops included in price. Address E. Brionne & Co., agents, 23 Duane St., New York, N. Y.

*No. 355 — Farm of 206 acres; located 2 miles from South Kortright P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; 1 mile from Protestant church; 2 miles from milk station. Nearest city, Oneonta, 14 miles distant, reached by rail. Surface of farm, rolling. Altitude, 1,600 ft. Soil, red slate. Acres in meadow, 70; in natural pasture, 125; in timber,

* Indicates farm is in hands of agent or real estate dealer.

11, hard wood. Acres tillable, 195. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire. House, 9 rooms, good. Outbuildings: large and in fine condition. Watered by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,500. Terms, \$3,000 cash, balance easy. Forty-four head of cattle, 2 horses, wagons, farming tools, etc., included in above price. Address E. Brionne & Co., agents, 23 Duane St., New York, N. Y.

*No. 356—Farm of 387 acres; located 4 miles from Hobart P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{4}$ mile from school; 2 miles from Methodist church; 4 miles from milk station. Highways, hilly but good. Nearest city, Oneonta, 30 miles distant, reached by rail. Surface of farm rolling. Soil, red slate. Acres in meadow, 100; in natural pasture, 125; in timber, 162, hard wood. Acres tillable, 225. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, large, 10 rooms, good condition. Outbuildings: large barn, hen house, hog house and horse barn. Watered by springs and creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$11,000. Terms, part cash, balance easy. Fifty head of cattle, 2 horses, wagons, tools, crops, sugar making utensils, etc., included in above price. Address E. Brionne & Co., agents, 23 Duane St., New York, N. Y.

*No. 357—Farm of 169 $\frac{1}{2}$ acres; located 2 miles from Bloomville P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Methodist church and milk station. Highways level and good. Nearest large village Delhi, 5 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,400 ft. Soil, red slate. Acres in meadow, 50; in natural pasture, 80; in timber, 39, hard wood. Acres tillable, 120. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, large, good condition. Outbuildings: barn in fair condition, concrete stables. Watered by springs and creek. Occupied

by owner. Reason for selling, advanced age of owner. Price, \$4,800. Terms, part cash. Twenty-seven head of cattle, 2 horses, wagons, farm tools, crops, etc., included in above price. Address E. Brionne & Co., agents, 23 Duane St., New York, N. Y.

*No. 358—Farm of 464 acres; located 4 miles from South Kortright P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{4}$ mile from school; 1 mile from Methodist church; 4 miles from milk station. Highways level and smooth. Nearest large village, Delhi, 12 miles distant, reached by highway. Surface of farm, rolling. Soil, red slate. Acres in meadow, 100; in natural pasture, 175; in timber, 189, maple, beech, birch, etc. Acres tillable, 200. Fruit, apples, pears, etc. Best adapted to grain, grass and potatoes. Fences, stone wall and wire. House, large, 2 families, fair condition, 13 rooms. Outbuildings: large barn, concrete floors, stable for 52 cows. Watered by springs and creek. Occupied by owner. Reason for selling, owner has other business. Price, \$11,000. Terms, \$4,000 cash, balance easy. Forty-three head of cattle, 4 horses, all farming tools, wagons, harness, crops, etc., included in above price. Address E. Brionne & Co., agents, 23 Duane St., New York, N. Y.

*No. 359—Farm of 135 acres; located $\frac{1}{2}$ mile from Hobart P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school, Methodist church and milk station. Highways, State road. Nearest city, Oneonta, 19 miles distant, reached by rail. Surface of farm, part rolling and part level. Altitude 1,400 ft. Soil, red loam. Acres in meadow, 40; in natural pasture, 80; in timber, 15, hard wood. Acres tillable, 120. Fruit, apples, pears, etc. Best adapted to grass, grain and potatoes. Fences, wire, good condition. House, 14 rooms, first-class condition. Outbuildings: new barn for 40 cows; large silo. Watered by springs. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$12,500. Terms, part cash. Twenty-six cows, 2 horses, all tools, wagons, crops, etc., included in price. Address E. Brionne & Co., 23 Duane St., New York, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 360—Farm of 157 acres; located 3 miles from Hobart P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; 3 miles from milk station and Protestant churches. Highways, good. Surface of farm, rolling. Altitude, 1,600 ft. Soil, loam. Acres in meadow, 80; in natural pasture, 60; in timber, 37, hard wood. Acres tillable, 130. Fruit, apples, pears, plums, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire. House, 10 rooms, new, hot and cold water, bath, etc. Outbuildings, large barn, hen house and hog house. Watered by springs and creek. Occupied by owner. Reason for selling, owner retired from business. Price, \$9,300. Terms, $\frac{1}{2}$ cash. Thirty-seven head of cattle, tools, crops, etc., included in above price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

* No. 361—Farm of 121 acres; located 1 mile from Hobart P. O. and railway station, on line of U. & D. R. R.; 1 mile from school, milk station and Protestant churches. Highways, good. Nearest large village, Stamford, 2 miles distant, reached by highway. Surface of farm, level. Altitude, 1,600 ft. Soil, loam. Acres in meadow, 40; in natural pasture, 80; in timber, 1. Acres tillable, 120. Fruit, apples, pears and plums. Best adapted to grass, grain, etc. Fences, stone wall and wire, first-class condition. House, 7 rooms, fair condition. Large barn, 60x60, with water buckets for each cow. Watered by springs. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$11,000. Terms, \$4,000 cash. About 70 head of cattle, large amount of tools, all crops, wagons, etc., included in price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

* No. 362—Farm of 337 acres; located 4 miles from South Kortright P. O. and railway station, on line of U. & D. R. R.; 20 rods from school; 1 mile from Methodist church; 4 miles from milk station. Highways, good. Nearest large village, Stamford, 6 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,600 ft. Soil, rich loam. Acres in meadow, 100; in natural pasture, 150; in timber, 87, hardwood. Acres tillable, 200. Fruit,

apples, pears, plums, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, 10 rooms, good condition. Large barn, in first class condition. Watered by springs and creek. Occupied by owner. Reason for selling, owner wants smaller place. Price, \$11,000. Terms, \$3,500 cash. 47 head of cattle, 3 horses, wagons, tools, crops, etc., included in above price. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

* No. 363—Farm of 170 acres; located $\frac{1}{2}$ mile from South Kortright P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school, Protestant church and milk station. Highways, hilly but good. Nearest large village, Delhi, 10 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,600 feet. Soil, loam. Acres in meadow, 70; in natural pasture, 80; in timber, 20, hardwood. Acres tillable, 150. Fruit, apples, pears, plums, etc. Best adapted to grass, grain and potatoes. Fences, stone wall and wire, good condition. House, 18 rooms, almost new. Large outbuildings, in first class condition; concrete floor in barn. Watered by springs. This farm is $\frac{1}{2}$ mile from Delaware River. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$11,500. Terms, $\frac{1}{2}$ cash. 38 cows, 3 horses, all tools, crops, machinery, etc., included in above price. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

* No. 364—Farm of 180 acres; located $1\frac{1}{2}$ miles from Hobart P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from milk station and Protestant churches. Highways, in fair condition. Nearest large village, Stamford, 5 miles distant, reached by highway. Surface of farm, level. Altitude, 1,600 feet. Soil, loam. Acres in meadow, 80; in natural pasture, 80; in timber, 20, hardwood. Acres tillable, 160. Fruit, apples, pears, etc. Best adapted to grass, grain, potatoes, etc. Fences, stone wall and wire, good condition. House, 9 rooms, good condition. Large barn, wagon house, etc. Watered by springs. This farm is $\frac{1}{2}$ mile from Delaware River. Occupied by owner. Reason for selling, advanced age

* Indicates farm is in hands of agent or real estate dealer.

of owner. Price, \$9,000. Terms, to suit purchaser. 30 cows, wagons, tools, crops, machinery, etc., included in above price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

* No. 365 — Farm of 140 acres; located $\frac{1}{2}$ mile from Hamford P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ miles from school, milk station, Catholic and Protestant churches. Highways, good. Surface of farm, rolling. Altitude, 2,100 feet. Soil, loam. Acres in meadow, 50; in natural pasture, 70; in timber, 20, hardwood. Acres tillable, 120. Fruit, apples, pears, etc. Best adapted to grass, grain, potatoes, etc. Fences, stone wall and wire, good condition. House, 8 rooms, fair condition. Outbuildings, in good condition. Watered by spring. This farm is $\frac{1}{2}$ mile from Delaware River. Reason for selling, owner a lawyer and does not have time to attend to farm. A fine sugar camp. Some stock, tools, etc., go with farm. Price, \$7,000. Terms, \$4,000 cash. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

* No. 366 — Farm of 500 acres; located $2\frac{1}{2}$ miles from South Kortright P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; 1 mile from Protestant church; $2\frac{1}{2}$ miles from milk station. Highways, good. Nearest large village, Stamford, 8 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,400 feet. Soil, rich loam. Acres in meadow, 100; in natural pasture, 200; in timber, 200, hardwood enough to pay for farm, 800 sugar maple trees. Acres tillable, 300. Fruit, apples, pears, plums, etc. Best adapted to grass, grain, potatoes, etc. Fences, stone wall and wire. House, 9 rooms, good condition. Outbuildings, large barn, wagon house and hen house, good condition. Watered by springs and creek. Occupied by owner. Reason for selling, dissolving partnership. Price, \$12,000. Terms, \$4,000 cash. 40 cows, 3 horses, wagons, tools, crops, 600 sap buckets, etc., included in above price. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

* No. 367 — Farm of 137 acres; located 1 mile from Bloomville P. O. and railway station, on line of U. & D. R.

R.; $\frac{1}{2}$ mile from school; 1 mile from milk station and Protestant churches. Highways, in good condition. Nearest large village, Delhi, 8 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 50; in natural pasture, 50; in timber, 37, hardwood. Acres tillable, 100. Fruit, apples, pears, etc. Best adapted to grass, grain, etc. Fences, stone wall and wire, good condition. House, 10 rooms, good condition. Outbuildings, new barn, concrete floors, cost \$1,600. Watered by springs. Occupied by owner. Reason for selling, ill health. Price, \$7,500. Terms, part cash. 18 cows, 2 horses, all tools, crops, wagons, etc., included in above price. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

* No. 368 — Farm of 165 acres; located 1 mile from Stamford P. O. and railway station, on line of U. & D. R. R.; 1 mile from school, milk station, Catholic and Protestant churches. Highways, good. Surface of farm, rolling. Altitude, 1,900 feet. Soil, loam. Acres in meadow, 50; in natural pasture, 80; in timber, 35, hardwood. Acres tillable, 100. Fruit, apples, pears, plums, etc. Best adapted to grass, grain, potatoes, etc. Fences, stone wall and wire. House, good size and in fair condition. Large outbuildings, in fair condition. Watered by springs. Occupied by owner. Reason for selling, owner retired from business. Price, \$4,300. Terms, easy. A good sugar camp and some tools included in above price. Address E. Brionne & Co., 23 Duane Street, New York, N. Y.

TOWN OF WALTON Population 5,088

No. 369 — Farm of 90 acres; located $5\frac{1}{2}$ miles from Walton P. O., R. D. No. 3; 2 miles from railway station at Northfield, on line of N. Y., O. & W. R. R.; $1\frac{1}{2}$ miles from school, Congregational church and milk station; $5\frac{1}{2}$ miles from milk condensing plant. Highways, good. Surface of farm, rolling. Altitude, 1,400 feet. Soil, red loam. Acres in meadow, 30; in natural pasture, 40; in timber, 20, maple, beech, birch and cherry. Acres tillable, 60. Fruit, apples, cherries and pears, also currants, raspberries and strawberries. Adapted

* Indicates farm is in hands of agent or real estate dealer.

to all crops grown in this climate. Fences, stone wall and wire, good condition. House, 30x40, good condition. Outbuildings, barn, 40x60, 3 floors, concrete floor in basement; wagon shed, 20x40; hen house, 12x40. Watered, house and barn by running water, fields

by springs and brook. Occupied by owner. Reason for selling, poor health of owner. Price, \$4,600. Terms, \$2,000 down, balance at 5% int. 16 head of cattle, horses and all farming and dairy utensils go at above price. Address John T. Williams, Walton, N. Y., R. D. No. 3.

DUTCHESS COUNTY

Area, 810 square miles. Population, 87,661. Annual precipitation, 54.1 inches. Annual mean temperature, 50.9°. Number of farms, 3,600. County seat, Poughkeepsie.

This county lies on the eastern line of the state bounded by Connecticut on the west and by the Hudson River on the east, about midway between Albany and New York City.

Its surface is principally rolling and hilly. A wide valley running north and south through the entire portion of the county, bounded on the east by the Tuganick Mountains and on the west by the Matteawan and Fishkill Range. Within this valley lie some of the finest farms of the state. The county is rich in mineral rocks and near its center there are quarries of marble, pure, white, fine grain and susceptible to high polish. The soil of the county is generally of a fine quality of sandy and gravelly loam. Agriculture is the leading industry and offers attractions to the farmer on account of the variety and fertility of the soil and the nearness to the markets of New York City. As choice apples as can be grown anywhere are grown in this country, many of which are exported to Europe. The principal crops are corn, 744,303 bushels; oats, 468,039 bushels; wheat, 32,920 bushels; buckwheat, 54,504 bushels; rye, 80,229 bushels; potatoes, 300,275 bushels; hay and forage, 122,406 tons. Domestic animals are reported as follows: Dairy cows, 31,241; horses, 10,945; swine, 19,798; sheep, 14,719; poultry, 236,074. The average price of farm land with buildings is \$58.52 per acre. The total valuation of all farm property is \$32,968,710, an increase of nearly \$8,000,000 over the value given in the census of 1900. This increase is exceeded only by six other counties of the state. The dairies of the county produced 18,869,564 gallons of milk and the receipts for the sale of dairy products were \$2,084,655.

There are twenty-nine agricultural organizations in the county, including twenty-four granges; also thirty-two milk stations and factories. The educational advantages are extraordinary, there being 183 district schools, several standard high schools and St. Stephen's College at Annandale. Vassar, one of the leading women's colleges in the country, is located at Poughkeepsie, together with private and military academies. Dutchess County presents great possibilities for farm investment and general farming, in common with a large number of the other counties of the state.

TOWN OF AMENIA

Population 2,123

No. 370 — Farm of 300 acres; located $\frac{3}{4}$ mile from Wassaic P. O.; $\frac{1}{4}$ mile from railway station at Wassaic, on line of Harlem Division of N. Y. C. & H. R. R. R.; $\frac{3}{4}$ mile from school, churches and milk station. Highways, good. Nearest village, Amenia, population 800, $1\frac{1}{2}$ miles distant. Surface of farm, rolling. Soil, limestone. Fruit, apples, pears, plums, cherries, peaches, berries. Best adapted to hay, grain and vegetables. Fences, good. House, large, in good condition; also tenant house. Barns, good. Watered, house by well,

barns by spring, fields by spring and stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,500. Terms, easy. Address Herbert Eggleston, agent, Millerton, N. Y.

No. 371 — Farm of 20 acres; located in South Amenia; 2 miles from railway station at Wassaic, on line of Harlem R. R.; $\frac{1}{4}$ mile from school; 20 rods from Presbyterian church; 2 miles from milk station and condensing plant. Highways, good. Nearest village, Amenia, population 800, 5 miles distant, reached by highway. Surface of farm, level. Altitude, 500 feet. Soil, loam. Acres in

meadow, 15; acres tillable, 20. Fruit, 150 apple trees. Best adapted to corn, potatoes and grass. Fences, wire and stone wall. House, large, 2 stories, in fair condition. 1 barn, 5 horse stalls and 2 cow stalls, wagon house. Watered, house and barn by well, fields by creek. Creek bounds property on the west. Reason for selling, to close an estate. Price, \$4,000. Terms, cash. Have a large house, in good repair, 13 rooms and 2 halls, long piazza, small barn and wood house. One acre of land which can be bought with above farm for \$6,000. This is directly connected with other land and has been run in connection with same for a number of years. Address E. G. Reynolds, Dover Plains, N. Y. Owner will rent.

No. 372 — Farm of 263 acres; $\frac{1}{2}$ mile from South Amenia P. O., R. D.; $2\frac{1}{2}$ miles from Wassaic, on line of Harlem R. R. Highways, good. Soil, gravelly loam. Acres, meadow, 175; tillable, 175; natural pasture, 40; timber, 50, chestnut, oak, maple and hickory. Fruit, 100 apple trees, Red Astrachan, Greening, Maiden Blush, etc. Adapted to all crops. Fences, wire, in good condition. House, 2-story, 8-room, with lean-to, all new. Barn, large, 3 stories, in good condition. Premises watered by springs and brook. Farm lies in valley, $1\frac{1}{2}$ miles wide, at the foothills of the Taghkanic range. Reasons for selling, to close an estate. Price, \$15,000. Terms, part cash, balance on mortgage. Address Edward G. Reynolds, Dover Plains, N. Y. Owner will rent.

* No. 373 — Farm of 130 acres; located 3 miles from Amenia P. O. and railway station, on line of Harlem R. R.; 3 miles from churches of all denominations, school and milk station. Highways, good. Surface of farm, practically level. Altitude, about 700 feet. Soil, limestone loam. Acres in meadow, 85; in natural pasture, 15; in timber, 12. Acres tillable, 115. Fences, good. House, 2 stories, 9 rooms, good condition. Outbuildings, basement barn, stable for 20 cows; horse barn, stable for 6 horses, good condition. Watered by springs and streams. Small river runs through farm. Occupied by tenant. Reason for selling, owner lives too far away to attend to farm. Price, \$4,500. Terms, $\frac{1}{2}$ cash. Address Herbert Eggleston, agent, Milerton, N. Y.

No. 374 — Farm of 300 acres; located $2\frac{1}{2}$ miles from South Amenia P. O.; 4 miles from railway station at Wassaic, on line of Harlem R. R.; $1\frac{1}{2}$ miles from school; 2 miles from church; 4 miles from milk station. Surface of farm, partly hilly. Altitude, about 500 feet. Acres in meadow, 75; in natural pasture and woodland, 125, chestnut and oak; 100 acres tillable. Adapted to corn, potatoes and oats. Fences, wire and stone wall, in good condition. House, $1\frac{1}{2}$ stories, 7 rooms, fair condition. Outbuildings, barn large enough for 40 head of cattle, fair condition. Watered by spring and brooks. Unoccupied. Reason for selling, owner has other business. Price, \$3,500. Terms, easy. Address Anthony J. Habeeb, 463 Gates Avenue, Brooklyn, N. Y.

No. 375 — Farm of 176 acres; located 2 miles from Dover Plains P. O. and railway station, on line of Harlem R. R.; 1 mile from school; 2 miles from Catholic and Protestant churches; 4 miles from milk condensing plant; 2 miles from milk station. Surface of farm, rolling. Altitude, 500 feet. Soil, loam and gravel. Acres in meadow, 75; in natural pasture, 40; in timber, 30, chestnut and oak. Acres tillable, 100. Fruit, apples, pears and cherries. Best adapted to hay, corn and fruit. Fences, in good condition. House, 12 rooms, 2 stories, first class condition. Outbuildings, in good condition. Watered by spring and brooks. Swift pond on part of farm. Occupied by owner. Reason for selling, owner has another farm. Price, \$15,000. Terms, cash or the equivalent. Address E. C. Benson, Dover Plains, N. Y.

TOWN OF DOVER

Population 2,016

No. 376 — Farm of 189 acres; situated 3 miles from Dover Plains, on Harlem branch of the N. Y. C. & H. R. R. R. Soil, red loam. Acres of meadow, 80; acres of pasture, 109. House, 15 rooms, in fair condition. Barns and outbuildings, ample for the use of the farm and in fair condition. Fences, stone wall and wire, in fair condition. Watered by wells and springs. Farm will keep 45 head of cattle and 5 horses. Price, \$50 per acre. Terms, to suit the purchaser. Name and address of owner, John Coyle, Jr., Dover Plains, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF FISHKILL

Population 13,858

* No. 377 — Farm of 63 acres; located $2\frac{1}{4}$ miles from Fishkill-on-Hudson P. O.; 3 miles from railway station at Fishkill Landing, on line of N. Y. C. & H. R. R. R.; $\frac{1}{2}$ mile from school; 1 mile from Catholic and Protestant churches; $1\frac{1}{2}$ miles from milk station. Highways, State road to within $\frac{1}{4}$ mile of farm. Surface of farm, rolling. Altitude, 200 to 300 feet. Soil, Dutchess silt. Acres in meadow, 16; in natural pasture, 18. Fruit, 500 peach trees 9 years old, 500 8 years old, 700 7 years old, 300 5 years old, and 3 acres of apples. Best adapted to peaches. Fences, some wire and some stone wall, good. House, 6 rooms, good condition. Outbuildings are ample for size of farm and in good condition; 1 barn, new. Watered by well and cistern. Occupied by owner. Reason for selling, owner has too much land. Price, \$9,000. Terms, $\frac{1}{2}$ cash. Address Edwin J. Webb, agent, Fishkill-on-Hudson, N. Y.

TOWN OF HYDE PARK

Population 3,019

No. 378 — Farm of 215 acres; located 2 miles from Staatsburg P. O. and railway station, on line of N. Y. C. & H. R. R. R.; $1\frac{1}{2}$ miles from school; 2 miles from churches, milk station and milk condensing plant. Highways, good State road. Surface of farm, rolling and level. Soil, sandy loam and clay loam. Acres in meadow, 35; in natural pasture, 25; in timber, 80, pine, chestnut, oak and hickory. Acres tillable, 75. Fruit, 75 apple trees, also cherries, pears and plums. Best adapted to corn, wheat, rye and oats. Fences, stone wall, post and wire. House, 28x38 with addition, 8 rooms, good condition. Outbuildings, hay and stock barn, 38x50; carriage house with basement, 32x28; ice house, creamery attached; sheep barn, 38x20; tenement house, 4 rooms, all in good condition. Watered by cistern, well, springs and running streams. Hudson River forms the west boundary of this property. Occupied by tenant. Reason for selling, advanced age and ill health of owner. Price, \$20,000. Terms, \$12,000 cash, balance of purchase price on bond and mortgage at 5%. Address Geo. W. Rymph, Hyde Park-on-the-Hudson, N. Y., Box 167.

TOWN OF NORTHEAST

Population 2,110

No. 379 — Farm of 180 acres; located $1\frac{1}{4}$ miles from Boston Corner P. O., R. D. 34, from Millerton; $1\frac{1}{2}$ miles from railway station at Boston Corner, on line of N. Y. & Harlem and C. N. E. R. R.; $\frac{3}{4}$ mile from school; $1\frac{1}{4}$ miles from milk station. Highways, good. Nearest large village, Millerton, population 900, 6 miles distant, reached by rail and highway. Soil, lime soil and gravel loam, high state of cultivation. Acres in meadow, 80; in natural pasture, 60; in timber, 40, chestnut, oak and maple; acres tillable, 140. Fruit, apples, pears, cherries and plums. Best adapted to corn, grass and all kinds of grain. Fences, mostly wire, some wall and rail, good condition. House, 24x40, piazza whole length, $2\frac{1}{2}$ stories, 12 rooms. Outbuildings, barn, 32x66; horse and carriage barn, 30x66, with ell, 12x24; sheds, tenant house and barn. Watered by well, cistern, springs and brook. Occupied by owner and tenant. This farm keeps dairy of 20 to 25; cuts 60 to 75 tons of hay. About 100 miles from New York City. This farm occupies a very desirable location. The house is well shaded by maple and chestnut trees and is situated on high ground overlooking the Harlem Valley. Barns are painted and modern; dairy improvements. A very desirable investment. Reason for selling, advanced age of owner. Price, \$12,500. Address Chas. E. Lloyd, Millerton, N. Y., R. D. 34.

* No. 380 — Farm of 157 acres; 1 mile from railway station at Mt. Riga, on line of Harlem R. R.; 1 mile from school; 4 miles from Methodist, Baptist, Catholic and Presbyterian churches; 4 miles from milk station. Highways, good. Nearest village, Millerton, population 900, distant 4 miles; R. D. from Millerton, reached by highway. Surface of farm, level. Soil, loam, productive. Acres in meadow, 148; in timber, 9, chestnut; acres tillable, 148. Fruit, apple orchard, 150 trees, all kinds small fruit. Best adapted to hay and grain. Good fences. House is practically new. Outbuildings: 2 large barns, new hog house, poultry house and other buildings, all in good repair. Watered, house by well, barns by spring, fields by springs

* Indicates farm is in hands of agent or real estate dealer.

and streams. Copake Lake and Indian Lake about 5 miles distant. Occupied by owner. Price, \$5,000. Terms, \$1,000 cash, balance on mortgage. Address Herbert Eggleston, Millerton, N. Y.

* No. 381 — Farm of 125 acres; located 1 mile from Millerton P. O., R. D. 34, and railway station, on line of Harlem R. R.; 30 rods from school; 1 mile from churches; 1 mile from butter factory. Highways, good. Nearest village, Millerton, population 900, 1 mile distant, reached by highway. Surface, rolling. Altitude, 800 feet. Soil, limestone loam. Acres in meadow, 100; in natural pasture, 25; in timber, 22, chestnut and oak; acres tillable, 100. 75 apple trees, also plum, pear and cherry trees. Best adapted to fruit and grain. Fences, wire and rail, in good condition. House, 35x45, 3 stories, 18 rooms, in good condition. Dairy barn, 30x60, stable room for 30 head of stock; horse barn, wagon house, poultry house, 3 tenant houses, in good condition. Watered, house by well, barns and fields by springs. One mile from Rudd Lake. This farm would be very suitable for summer boarders; has a large house and fine shade trees. Occupied by owner. Reason for selling, owner wishes larger farm. Price, \$12,000. Easy terms. Address Herbert Eggleston, Millerton, Dutchess Co., N. Y.

* No. 382 — Farm of 180 acres; located 1¼ miles from Boston Corners P. O. and railway station, on line of Harlem R. R.; ½ mile from school; 1 mile from churches; 1½ miles from milk station. Highways, good. Nearest village, Boston Corners, population 200, 1½ miles distant, reached by highway. Surface, rolling. Altitude, 700 feet. Soil, limestone, loam. 40 acres of timber, chestnut and oak. 100 apple trees; also pears, peaches, plums, etc. Best adapted to grain and fruit. Fences, rail and wire, in good condition. House, 32x36, 2 stories; ell, 15x20, 2 stories; good condition. Barn, 32x66, stable room for 28 head of stock; horse barn, stable for 6 horses. Watered, house by well and cistern. Occupied by owner. Reason for selling, owner desires to buy a small place in village. Price, \$12,500. Terms, cash preferred. Address Herbert Eggleston, Millerton, Dutchess Co., N. Y.

* No. 383 — Farm of 341 acres; located 4 miles from Millerton P. O.; 1½ miles from railway station at Coleman's and Sharon, on line of Harlem Division of the N. Y. C. R. R.; 1 mile from school and milk station; 4 miles from churches. State road and good country road. Surface of farm, level and rolling. Soil, silt loam. Acres in meadow, 300; in natural pasture, 25; in timber, 15, chestnut and oak; acres tillable, 250. Fruit, 3 acres of apples, also pears and small fruit. Adapted to all crops grown in this climate. Fences, rail and wire, good condition. House, 12 rooms, fine condition. Outbuildings: cow barn, stable for 100 head; horse barn for 10 horses; large hay barn, corn house, shed and other outbuildings, good condition. Watered by well, springs and brooks. This farm is well adapted to stock raising; will carry 100 head of cows and other stock. Very desirable property. Occupied by owner. Reason for selling, to close an estate. For price and terms, address M. L. Jenks, Millerton, N. Y.

* No. 384 — Farm of 175 acres; located 2½ miles from Millerton P. O., R. D.; 2½ miles from railway station at Millerton, on line of Harlem Division of N. Y. C. R. R. and C. N. E. R. R.; 1 mile from school; 2½ miles from Baptist, Methodist, Presbyterian and Catholic churches; 2½ miles from milk station. Highways, good; 1½ miles from State road. Nearest village, Millerton, population 900, 2½ miles distant, reached by highway. Surface of farm, ½ level, ½ hilly. Soil, silt loam. Acres in meadow, 100; in natural pasture, 45; in timber, 30, chestnut and oak; acres tillable, 125. Fruit, 50 apple trees. Adapted to general farming. Fences, rail and wire, in good condition. House, an 8-room house; a small house; both in need of repairs. Barns, large barn, 30x46; smaller barn, 24x32; both in need of repairs. Watered, house by well, barns by brook, fields by springs and brook. This farm is in a good section and is adapted to dairying. Occupied, farm by owner; houses by tenants. Reason for selling, owner has another farm. Price, \$4,500. Terms, \$2,500 cash, balance on mortgage. Address Miles L. Jenks, agent, Millerton, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 385 — Farm of 10 acres; located 1 mile from Millerton P. O. and railway station, on line of Harlem R. R.; $\frac{1}{2}$ of a mile from school; 1 mile from churches of all denominations and milk station. Highways, good. Surface of farm, rolling. Altitude, 800 feet. Soil, limestone loam. Acres tillable, 10. Fruit, several apple trees. Best adapted to fruit and vegetables. Fences, good. House, 7 rooms, good condition. Out-buildings, barn and stable room for 2 cows, 2 horses, wagons, hay, grain, poultry house, in good condition. Watered, house by well, barns by spring. This farm is 1 mile from Rudd Lake. Occupied by owner. Price, \$2,500. Terms, $\frac{1}{2}$ cash. Address Herbert Eggleston, agent, Millerton, N. Y.

* No. 386 — Farm of 275 acres; located 2 miles from Mt. Riga Station, on highest point of the Harlem Division of the N. Y. C. & H. R. R. R.; $2\frac{1}{2}$ hours' ride from New York City; five passenger trains to and from New York daily; R. D. from Millerton; 2 miles to N. Y. & N. H. R. R. station, C. N. E. Division. Strong limestone soil. Soil is well adapted to growing apples; 200 acres of meadow and tillable land, balance pasture and timber. 14-room double house. Main barn, 50x70; small barn, 30x40; shed and stables. Never-failing spring water in house and barns. Fine limestone quarry on premises; 80 rods from two railroads. Well fenced. There are two railroads running parallel through this property. Owner will sell 75 acres west of the railroad for \$2,400, and 200 acres east of the railroads, including buildings, for \$10,000. Price, \$12,400. Address Walter Eggleston, Millerton, N. Y., R. D.

TOWN OF PINE PLAINS

Population 1,420

* No. 387 — Farm of 360 acres; located 2 miles from Pine Plains P. O., R. D. 3; 2 miles from Pine Plains, on line of C. N. E. R. R.; 1 mile from Mt. Cross, on line of Rhinecliff Division of N. E. R. R.; 1 mile from school; 2 miles from Baptist, Presbyterian, Catholic and Episcopal churches. Highways, good. Nearest city, Poughkeepsie, population 28,000, 25 miles distant, reached by rail or highway. Surface of farm, rolling, some hilly, some level. Soil loam. Acres in

meadow, 40; in natural pasture, 150; in timber, 60, chestnut, oak, hickory; acres tillable, 150. Fruit, 100 apple trees, peaches, pears and other fruit. Best adapted to general farming; has been used as a stock and dairy farm. Fences, rail, wire and stone. Large 12-room house, in good condition. Set of large barns near dwelling, in good condition. Tenant house, barn and shed separate, in fair condition. Watered, house and barn by running water, fields by springs and brooks. Occupied by owner. Reason for selling, owner is a widow. Price, \$40 an acre. Terms, $\frac{1}{2}$ cash. Address Miles L. Jenks, agent, Millerton, N. Y.

* No. 388 — Farm of 360 acres; located 1 mile from Mt. Ross P. O.; R. D. 37 from Pine Plains; on line of C. N. E. R. R.; 1 mile from station; 1 mile from school; 2 miles from Reformed church. Highways, good. Nearest village, Pine Plains, population 600, 3 miles distant, reached by highway. Occupied by owner. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 150; in natural pasture, 150; in timber, 60, oak, hickory and chestnut; acres tillable, 250. Fruit, 200 apple trees, pears and cherries. Best adapted to hay, grain, potatoes and fruit. Fences, stone wall, rail and wire. House 12 rooms, in fine condition. Main barn, 40x60; wagon house, 50x30; storage barns. Watered, house and barn by running spring water, fields by springs and streams. A good dairy and chicken farm. Reason for selling, owner a widow. Price, \$11,000. Terms, \$6,000 cash, balance on mortgage. Address John P. Fulton, agent, Red Hook, N. Y.

TOWN OF PLEASANT VALLEY

Population 1,358

No. 389 — Farm of 97 acres; situated near C. N. E. R. R.; R. D. from Pleasant Valley. Highways, good. Soil, good flat land. Acres of meadow, nearly all tillable. Fruit, large, young apple orchard. Best adapted to hay, oats, barley, potatoes, corn, buckwheat, etc. Occupied by owner. Fences, stone, and in good condition. Large house, comparatively new. Barns large and good; running water. Watered, house by well and cistern, fields by small stream. It is said that the buildings on this farm could not be replaced for \$12,000. Reason for selling, advanced age of owner. Price,

* Indicates farm is in hands of agent or real estate dealer.

about \$14,000. Terms on application. Name and address of owner, Ralph Bartholomew, Pleasant Valley, N. Y., R. D.

No. 390 — Farm of 83 acres; located $1\frac{1}{4}$ miles from Salt Point P. O., R. D. 54; 2 miles from railway station at Salt Point, on line of C. N. E. R. R.; 1 mile from school and churches; 2 miles from butter factory and milk station. Highways, good. Nearest city, Poughkeepsie, population about 35,000, distant 9 miles, reached by rail and highway. Surface, level and rolling. Altitude, about 400 feet. Soil, Dutchess silt loam. Acres in natural pasture, 5; in timber, $\frac{1}{4}$; acres tillable, 82. Fruit, cherries, pears, apples. Best adapted to general farming and poultry. Fences, stone and wire, good condition. House, 14 rooms, large, excellent condition. Outbuildings, new barn, 28x32; granary; carriage house, 16x24; hen house and woodshed, 11x40; hen houses, 20x60 and 20x100; six colony houses, 8x10. Watered, house by cistern and well, barns and fields by springs. This farm will keep 15 cows. Occupied by owner. Price, \$6,000. Terms, \$3,000 cash, balance can remain on mortgage at 5% interest. Address August L. Warnken, Salt Point, N. Y., Box 54.

TOWN OF RED HOOK
Population 3,705

No. 391 — Farm of 145 acres; 100 rods from Spring Lake station; $1\frac{1}{2}$ miles from Upper Red Hook P. O. Good road. Soil, loam, muck and gravel, very rich. 100 acres meadow; natural pasture, 25; timber, 20. Large house, in fine condition, suitable for boarders. Soil adapted to gardening, dairying and grain. Barns, large and good, with stable room for 25 cows. Fruit, pear orchard and 400 apple trees. Watered by springs and lake adjoining farm. This is a fine farm for raising poultry. Price, \$13,000. Terms, to suit the purchaser. Name and address of owner, Milton Best, Red Hook, N. Y.

No. 392 — Farm of 108 acres; 1 mile from post office; 1 mile from 3 churches; $\frac{1}{2}$ mile from the Baker Chocolate factory creamery and high school. First-class frame house. Barn, 40x52, with basement. Good outbuildings. Two violet houses, one 155 feet long, just built at a cost of \$1,800. Ready market found

for all that can be raised on the farm and in the conservatory. Would be a good place to breed and train horses, as there is a new half-mile track a quarter mile from the house, and entrance to track is only across the State road from entrance to farm. Reason for selling, owner cannot stand hard work and is obliged to change his occupation. Price and terms confidential. Address Julius Moul, Red Hook, N. Y.

* No. 393 — Farm of 110 acres; located 1 mile from Upper Red Hook P. O., R. D. 44; $\frac{1}{2}$ mile from railway station at Upper Red Hook, on line of C. N. E. Ry.; 1 mile from school and church. Highways, good. Occupied by owner. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 10; in natural pasture, 100. Acres tillable, 15. Fruit, 400 apple trees and 50 pear trees. Best adapted to grain, fruit and hay. Fences, stone wall and wire, good condition. House, 38x28, with addition 16x28, good condition. Outbuildings, barn, 52x40, shed adjoining, 21x32, basement under all, new. Watered, house, by well and cistern; barn, by wells; fields, by springs. Spring Lake is $\frac{1}{2}$ mile from farm. Price \$11,000. Terms, cash. Reason for selling, advanced age of owner. Address John P. Fulton, agent, Red Hook, N. Y.

TOWN OF RHINEBECK
Population 3,532

No. 394 — Farm of 138 acres; located $\frac{1}{4}$ mile from Rhinebeck P. O.; $1\frac{1}{2}$ miles from Rhinecliff railway station, on line of N. Y. C. R. R.; $\frac{1}{4}$ mile from school and churches; 6 miles from milk station. Highways, good. Surface, mostly level. Soil, loam. Acres in meadow, all; acres tillable, all. Fruit, 300 apple trees, some pears and cherries. Best adapted to hay, corn, wheat, potatoes and rye. Fences, wire, fair. House, 40x80, good. Outbuildings: barn, 150x35; carriagehouse, 40x60; stable, 40x20; 3 greenhouses for violets. Income from violets, \$5,000. Watered by village water, spring and creek. This property is $1\frac{1}{2}$ miles from Hudson river, good view of Catskill Mountains. This would make an ideal place for large summer hotel, school or sanitarium, as it is high and gets the breezes from the Cats' Ills. The village needs a good hotel for summer

* Indicates farm is in hands of agent or real estate dealer.

boarders. Occupied by owner. Price, \$30,000. Terms, $\frac{1}{2}$ cash, remainder on mortgage. Address Francis Curnan, Rhinebeck, N. Y.

No. 395 — Farm of 185 acres; located 2 miles from Rhinebeck P. O., R. D. No. 50; 4 miles from railway station at Rhinecliff, on line of N. Y. C. & H. R. R. R.; 1 mile from school, Catholic and Protestant churches; 2 miles from milk station and milk condensing plant. Highways in good condition. Nearest city, Poughkeepsie, 15 miles distant, reached by rail and highway. Surface of farm, rolling and level. Altitude,

300 ft. Soil, clay loam. Acres in meadow, 30; in natural pasture, 105; in timber, 50, oak, maple, hickory and elm. Acres tillable 135. Fruit, 350 apple, 20 pear, 12 plum and 15 peach trees. Best adapted to corn, oats, rye and hay. Fences, wire and stone wall, good condition. House, large, 2 stories, 20 rooms, good condition. Outbuildings, large barn, sheds, 2 hen houses, carriage house, all in good condition. Watered, house, by well; barns, by well and creek; fields, by creeks and springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$9,000. Terms, $\frac{2}{3}$ cash. Address Clarence Crapser, Rhinebeck, N. Y.

ERIE COUNTY

Area, 1,171 square miles. Population, 528,985. Annual precipitation, 33.51 inches. Annual mean temperature, 49.7°. Number of farms, 8,178. County seat, Buffalo.

This county lies at the west end of the state on Lake Erie and Niagara River and is one of the larger counties both in area and population.

Its surface is level in the north, rolling in the center and hilly in the south. A region of level country of considerable extent lies along the Tonawanda creek and occupies the greater part of the northern tier of towns. The soil of the northern part of the county is generally a clay loam interspersed with beds of marl and muck, further south is found a clay gravelly loam resting upon limestone, and the southern hills are covered with drift consisting of clay and gravel. The soil of the valleys is generally of gravelly loam and alluvium. The principal pursuits are grain raising and dairying, the southern hill regions being well adapted to grazing and stock raising. It is also a strong fruit county and ranks high in the production of orchard and vineyard products. Buffalo, a city of 423,000 population, affords an unlimited market close at hand. From this city, the western terminal of the barge canal, reaching from the Hudson River to Lake Erie, an enormous commercial business is carried on by way of the lake to the towns along its shore.

The principal crops are as follows: Corn, 568,563 bushels; oats, 1,384,876 bushels; wheat, 355,870 bushels; buckwheat, 169,673 bushels; potatoes, 3,014,450 bushels; hay and forage, 207,202 tons. The value of all farm property is \$63,808,399, an increase of 23.7 per cent. The average price per acre of farm land, including buildings, is \$95.40. Much of the land is of high valuation because of its adaptability to truck gardening and the splendid orchards of apples, pears, peaches, plums, etc. Aside from these products there were produced 24,470,712 gallons of milk, the receipts from the sale of dairy products being \$2,323,714. There are 259 district schools and these schools and the many high schools of the county are all up to the high standard required by the state. Churches of all denominations are scattered throughout the rural sections. The county has nineteen agricultural organizations for the purpose of conserving some one or more interests in agriculture. Thirty-six dairy stations and factories meet the demand of the farmers for milk market. There are 163 miles of state and county roads and 1,680 miles of other improved highways in the county.

TOWN OF BOSTON

Population 1,535

*No. 396 — Farm of 100 acres; located $3\frac{1}{2}$ miles from Hamburg P. O.; 2 miles from railway station at North Boston, on line of B. & S. R. R.; 1 mile from

school and churches; 2 miles from butter factory and milk station. Highways, good. Nearest large village, Hamburg, population 2,500, reached by highway. Surface, rolling and level. Soil, yellow loam. Acres in meadow, 25;

* Indicates farm is in hands of agent or real estate dealer.

in natural pasture, 25; in timber, 25, hemlock and maple; acres tillable, 60 to 75. Fruit, apples, pears and cherries. Fences, wire and wood. House, large, 10 rooms, 2 stories, brick. Outbuildings, in fair condition. Watered, by well and spring. Occupied by owner. Reason for selling, owner does not care for so large a farm. Price, \$7,000. Terms, $\frac{1}{2}$ cash, balance on mortgage at 6%. Address Jacob Hauck & Son, agents, Hamburg, N. Y.

TOWN OF CLARENCE

Population 2,991

No. 397 — Farm of 60 acres; located $\frac{3}{4}$ mile from Clarence P. O., R. D. 1, and station of Clarence, on line of W. S. R. R.; $\frac{3}{4}$ mile from high school, Protestant churches, butter factory and milk station. Roads are macadamized. Nearest city, Buffalo, distant 18 miles by rail or good roads. Surface, level. Soil, clay and gravelly loam. Fifty-eight acres tillable; 2 acres timber, second growth, hard wood. Has 125 apple, 35 pear, 24 plum, 6 cherry, 2 quince trees, all of good varieties, good grapevines, etc. Land is adapted to general farm crops, and especially for dairying. Fences, wire, in good condition. Ten-room house, with cellar, all in good condition. Barn, 35x60; 2 silos; hog pen, 18x30; tool house; 2 chicken houses; corn crib; woodshed and shop, 20x45; stone smoke house. Barn contains a horse stable, with 4 stalls and a cemented cow stable for 10 head of cattle, barn in good condition. House has water from dug wells; barns the same, water piped direct to cow stable from outside. Occupied by tenant. Reason for selling, owner has retired. Price, \$5,000. Terms, \$1,500, balance on mortgage. Address J. G. Helwig, Clarence, N. Y.

TOWN OF EAST HAMBURG

Population 2,636

* No. 398 — Farm of 71 acres; located $1\frac{1}{2}$ miles from Orchard Park P. O., R. D. No. 1 and railway station, on line of B. R. & P. R. R.; 40 rods from school; $1\frac{1}{2}$ miles from Catholic and Protestant churches; 2 miles from milk condensing plant. Highways, crushed stone. Nearest city, Buffalo, 8 miles distant, reached by rail and highway. Surface of farm, level. Soil, loam and muck. Acres in meadow, 65; in natural pasture, 6; in

timber, 6, second growth. Acres tillable, 65. Fruit, 125 apple and pear trees, 100 grape vines. Best adapted to potatoes, hay and oats. Fences, wire, good. House, 2 stories, 11 rooms. Outbuildings, barn, 42x68, with basement; barn, 30x60; silo, 16x24, and several sheds. Watered, house and barns by well; fields, by springs. Occupied by owner. Price, \$13,500. Terms, $\frac{2}{3}$ down, balance on mortgage. Address Frank Utley, agent, Orchard Plant, N. Y.

* No. 399 — Farm of 140 acres; located 3 miles from Orchard Park P. O., R. D. No. 1; $2\frac{1}{2}$ miles from railway station at Orchard Park, on line of B. R. & P. R. R.; 1 mile from school and churches; 3 miles from butter factory; $2\frac{1}{2}$ miles from milk station. Highways, part State road. Nearest city, Buffalo, 9 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam. Acres in meadow 80; in natural pasture, 35; in timber, 25. Acres tillable, 90. Fruit, 300 trees, apples, pears and cherries. Best adapted to hay, oats, potatoes, etc. Fences, wire, fair condition. House, 11 rooms, good condition. Outbuildings, in good condition. Watered by well and spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,500. Terms, half cash, balance on mortgage. Address Frank Utley agent Orchard Park, N. Y.

* No. 400 — Farm of 101 acres; located $2\frac{1}{2}$ miles from Orchard Park P. O., R. D. No. 2 and railway station, on line of B. R. & P. R. R.; $\frac{1}{2}$ mile from school and Protestant church; 2 miles from milk station. Highways, part State road. Nearest city, Buffalo, 8 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 94; in natural pasture, 7; in timber, 7, second growth. Acres tillable, 94. Fruit, $6\frac{1}{2}$ acres of apples and pears. Best adapted to hay, oats, potatoes, etc. Fence, wire, good. House, 26x30, new, 2 stories, 11 rooms, also house of 9 and house of 7 rooms. Outbuildings, barn, 24x30; barn, 28x70; shed, 20x40. Watered, house and barns by well; fields, by spring. Occupied by owner. Price, \$125 per acre. Terms, half down, balance on mortgage. Address Frank Utley, agent, Orchard Park, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF EDEN
Population 2,526

No. 401 — Farm of 100 acres; located 2½ miles from North Collins P. O., R. D. No. 2 and railway station, on line of Erie R. R.; 1 mile from school; 2½ miles from Catholic and Protestant churches; 2½ miles from cheese factory and milk station; 7 miles from milk bottling plant. Highways, good. Nearest large village, Hamburg, 8 miles distant, reached by rail and State road. Surface of farm, slightly rolling. Soil, sandy and gravelly loam. Acres in meadow, 12; in natural pasture, 40; in timber, 30, maple, chestnut and hemlock. Acres tillable, 40. Fruit, grapes, apples, plums, pears, quinces and cherries. Best adapted to fruit and vegetables. Fences, rail, wire and stump, poor condition. House, 10 rooms, good condition. Outbuildings, 2 barns, one 30x40, and one 30x30, good condition. Watered, house and barn by well. Occupied by owner. Reason for selling, owner unable to work place. Price, \$7,000. Terms, \$4,200 cash, remainder on mortgage. Address F. P. Robinson, North Collins, N. Y.

TOWN OF HAMBURG
Population 6,059

* No. 402 — Farm of 90 acres; 1½ miles from Hamburg P. O.; 2 miles from railway station at Hamburg, on line of Erie and B. & S. R. R., and from school, churches and milk station; ¼ mile from cheese factory. Highways, State road, improved macadam. Nearest village, Hamburg, population, about 2,500, distant 1½ miles, reached by highway. Surface of farm, slightly rolling. Soil, gravel and sandy loam. Acres in pasture, 12; acres tillable, all. Fruit, about 50 apple trees, a few plum and pear trees. Best adapted to gardening and potatoes. Fence around pasture. Good house, 28x40, with wing. Large ample barns. Watered by wells. Half mile from Eighteen Mile Creek. Occupied by owner. Reason for selling, owner wishes to live near his relatives. Price, \$100 per acre. Terms, ½ cash, balance 6% mortgage. Address Jacob Hauck, agent, Hamburg N. Y.

* No. 403 — Farm of 45 acres; located 4 miles from Hamburg P. O.; 1 mile

from railway station at Weyer, on line of N. Y. C. and Penn. R. R.; 1½ miles from school; 4 miles from churches. Highways, good. Surface of farm, level. Soil, gravelly and yellow loam. Acres in meadow, 5; in natural pasture, 3. Acres tillable, 40. Fruit, a few apples, pears and plums. House, 6 rooms, fair condition. Outbuildings, 2 large barns, good condition. Watered by well. Occupied by tenant. Reason for selling, owner a widow and cannot attend to farm. Price, \$4,000. Terms, \$1,500 down, balance on easy terms. Address Jacob Hauck & Son, agents, Hamburg, N. Y.

* No. 404 — Farm of 82½ acres; located 3 miles from Eden P. O.; 1 mile from railway station at Eden Valley, on line of Erie R. R.; 1½ miles from school; 4 miles from churches; 1 mile from butter factory, cheese factory and milk station. Highways, good. Surface of farm, rolling. Soil, sandy and gravelly loam. Acres in timber, 3. Acres tillable, 79. Best adapted to gardening. House, 9 rooms, good condition. Outbuildings, 3 large barns, granary, hog pen, chicken house and tool house. Watered by well. This farm is 4 miles from Lake Erie. Occupied by owner. Reason for selling, owner has another farm. Price, \$7,000. Terms, \$5,000 cash, balance on mortgage at 6%. Price includes 9 cows and feed in barns. Address Jacob Hauck & Son, agents, Hamburg, N. Y.

* No. 405 — Farm of 100 acres; located 1½ miles from Hamburg P. O.; 2 miles from railway station at Hamburg, on line of Erie and B. & S. R. R.; 1½ miles from school, churches, and milk station. Highways, good. Surface of farm, rolling. Soil, sandy loam. Acres in timber, 20. Acres tillable, 75. Fruit, apple and pear orchard and young plum and prune orchard; also berries. Best adapted to gardening. House, 12 rooms. Natural gas in house. Outbuildings, 2 large barns, chicken house and ice house. Watered by well. Occupied by owner. Reason for selling, owner wishes to move to village. Price, \$10,000. Terms, \$7,000 cash, balance on mortgage. Address Jacob Hauck & Son, agents, Hamburg, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF HOLLAND

Population 1,468

*No. 406 — Farm of 67 acres; located $1\frac{1}{2}$ miles from Holland P. O.; 2 miles from railway station at Holland, on line of Penn. R. R.; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from churches and butter factory; 2 miles from milk station; 10 miles from milk condensing plant. Highways, nearly level. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 20; in natural pasture, 30; in timber, 6, maple and beech, second growth. Acres tillable, 40. Fruit, a few apples, cherries and pears, enough for family use. Best adapted to corn, oats and potatoes. Fences, wire, good condition. House, 9 rooms, $1\frac{1}{2}$ stories, with wing and good cellar. Outbuildings, barn, 40x50, old style, fair condition. Watered, house and barns, by well; fields, by springs. Occupied by tenant. Reason for selling, owner has other business. Price, \$50 per acre. Terms, one-half cash, balance on mortgage at 5%. Address John Bolender, agent, Holland, N. Y. Owner will rent.

TOWN OF NEWSTEAD

Population 3,760

No. 407 — Farm of 60 acres; located $3\frac{1}{2}$ miles from Akron P. O.; 2 miles from railway station at Crittenden, on line of N. Y. C. & H. R. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches; $1\frac{1}{2}$ miles from butter factory and cheese factory; 2 miles from milk station; $3\frac{1}{2}$ miles from milk condensing plant. Surface of farm, rolling. Soil, gravel loam. Acres in meadow, 20; in natural pasture, 12. Acres tillable, 50. Fruit, a few

apple trees and some grapes. Best adapted to winter grain, corn and hay. Fences, in poor condition. House, upright, 17x33, $1\frac{1}{2}$ stories, with one-story wing, 15x20: Watered by well. Occupied by owner. Reason for selling, owner unable to work farm. Price, \$3,000. Terms, two-thirds cash, balance on mortgage. Address Josephine Stone, Crittenden, N. Y.

TOWN OF WEST SENECA

Population 4,605

No. 408 — Farm of 65 acres; located $\frac{1}{2}$ mile from Ebenezer P. O., R. D. 2; $1\frac{1}{2}$ miles from railway station at Ebenezer, on line of Penn. R. R.; $\frac{1}{4}$ mile from school and from Lutheran and Methodist churches; $1\frac{1}{2}$ miles from milk station. Macadam roads, good. Nearest city, Buffalo, population 400,000, 2 miles distant, reached by rail or highway. Surface of farm, slightly rolling. Soil, gravel and sandy loam. Acres in meadow, 40; in natural pasture, 5. Acres tillable, 55. Fruit, 150 apple, 15 pear, 50 cherry, 6 prune, 2 quince and 5 crab-apple trees. Best adapted to corn, wheat, oats, potatoes, onions and cabbage. Fences, part barbed wire. New house, 7 rooms; old house, 8 rooms. Barns, 40x70, 40x60, both in good condition. Watered, house and barn, by well. Four miles from Lake Erie. Gas well on property; also gas in both houses and water and bath in new house. Occupied by owner and tenant. Reason for selling, owner wishes to retire. Price, \$30,000. Terms, one-half cash, balance on mortgage. Address Wm. Eckert, Ebenezer, N. Y.

ESSEX COUNTY

Area, 1,926 square miles. Population, 33,458. Annual precipitation, 35.41 inches. Annual mean temperature, 46.8°. Number of farms, 2,274. County seat, Elizabethtown.

This county is located in the northeastern part of the state.

It is by far the most broken and mountainous section of the state, with the exception of a strip of land lying along the shore of Lake Champlain. Nearly the whole county is of an Alpine character. Among these mountains are immense beds of magnetic iron ore. Other minerals interesting to science are found in abundance. Lake Champlain and Lake George lie partly in the county. These lakes with the Champlain Canal, the Hudson, Saranac and Raquette Rivers form a convenient outlet for the large amount of logs, lumber and mineral products of the county. There is also an outlet for everything marketable on the north by the way of the Richelieu and St. Lawrence Rivers.

Only about one-third of the area of the county is in farms and only about one-eighth improved farms, yet there is a remarkably good report of agricultural production, showing that the tillable land must be very productive. The average price of

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improved farm lands including buildings is \$24.71 per acre. The leading crops of the county are corn, 96,383 bushels; oats, 222,971 bushels; barley, 9,395 bushels; buckwheat, 25,197 bushels; potatoes, 269,319 bushels; hay and forage, 50,479 tons. The number of domestic animals reported on 2,139 farms are dairy cows, 10,634; horses, 5,907; swine, 4,949; sheep, 19,814; poultry, 61,169. The product of milk was 4,976,712 gallons, the total receipts for the sale of dairy products, \$303,933. There are 164 district schools and the same favorable condition exists in regard to churches of all denominations. There are 14 agricultural organizations in the county all interested in the promotion of agricultural matters. The county has 100 miles of state and county roads and 1,069 miles of other improved highways. A smaller per cent. of the farms of Essex County are mortgaged than in any other county of the state.

TOWN OF CHESTERFIELD

Population 1,829

No. 409 — Farm of 150 acres; located 1 mile from Keeseville P. O., R. D. 1; $1\frac{1}{4}$ miles from railway station at Keeseville, on line of K. A. & L. C. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{4}$ miles from Catholic and Protestant churches; $1\frac{1}{2}$ miles from milk station; 6 miles from cheese factory. Highways, good. Surface of farm, slightly rolling to the east. Altitude, 400 feet. Soil, black gravelly loam. Acres in meadow, 35; in natural pasture, 25; in timber, 25, pine and mixed hard wood. Acres tillable, 100. Fruit, apples, pears, cherries and plums. Adapted to all crops grown in this climate. Fences, wire and wood. House, 40x25, with wing and wood shed attached, good condition. Outbuildings, barn, 30x40, two sheds attached, good condition. Water piped from spring to house and barns; brook runs through fields. This farm is $\frac{1}{2}$ mile to Ausable River, $2\frac{1}{4}$ miles to Auger Lake and 4 miles to Lake Champlain. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,000. Terms, one-half down, balance on mortgage. Address Peter H. Ricketson, Keeseville, N. Y.

TOWN OF ELIZABETHTOWN

Population 1,108

No. 410 — Farm of 300 acres; located $2\frac{1}{2}$ miles from Elizabethtown P. O.; $9\frac{1}{2}$ miles from railway station at Westport, on line of D. & H. R. R.; 2 miles from school; $2\frac{1}{2}$ miles from churches; $9\frac{1}{2}$ miles from butter factory. Highways, good. Surface of farm, level. Soil, good. Acres in meadow, 75; in natural pasture, 75; in timber, 150, pine and hard wood. Best adapted to corn, oats and potatoes. Fences, wire and rail, fair condition. House, fair condition. Outbuildings in fair condition. Watered by well. Boquet River is 20 rods from

house. Occupied by tenant. Reason for selling, owner has too much land. Price, \$4,000. Terms, cash or easy payments. Address A. R. Otis, Elizabethtown, N. Y. Owner will rent.

No. 411 — Farm of 150 acres; located 1 mile from Elizabethtown P. O.; 8 miles from railway station at Westport, on line of D. & H. R. R.; 1 mile from school and churches; 8 miles from butter factory and milk station. Highways, in good condition. Surface of farm, smooth and level. Soil, loam and sand. Acres in meadow, 50; in natural pasture, 100. Acres tillable, 100. Best adapted to potatoes and corn. Fences, wire, good. Small house. Plenty of good barns, in good condition. Water in house and barn; fields watered by brook. Unoccupied. Reason for selling, owner wants to give up farming. Price, \$4,500. Terms, cash. Address M. C. Stauter, Elizabethtown, N. Y.

TOWN OF LEWIS

Population 937

No. 412 — Farm of 200 acres; located 4 miles from P. O.; 12 miles from railway station at Westport, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school and churches; 12 miles from butter factory and milk station. Highways, in fair condition. Soil, sandy. Acres in meadow, 50; in natural pasture, 75; in timber, 75, mostly hard wood. Best adapted to potatoes and corn. Fences, American wire and rail. House, in good condition. Barns, in fair condition. Watered by well. Occupied by owner. Price, \$2,000. Terms, cash. Address Chas. P. McMurtey, Elizabethtown, N. Y.

TOWN OF WESTPORT

Population 1,867

No. 413 — Farm of 150 acres; located $1\frac{3}{4}$ miles from Wadhams P. O., R. D. 2;

3 miles from railway station at Wadhams, on line of D. & H. R. R.; 1 mile from school; 1¼ miles from churches; 5¼ miles from butter factory and milk station. Highways, good. Surface of farm, part rough and part level. Soil, clay loam. Acres in meadow, 65; in natural pasture, 60; in timber, 25, hard wood and pine. Fruit, apples. Adapted

to any crop grown in this climate. Fences, in poor condition. House, in good condition. Outbuildings, in fair condition. Watered, house and barn, by spring and cistern; fields, by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,500. Terms, part cash. Address Ashley M. Miller, Wadhams, N. Y.

FRANKLIN COUNTY

Area, 1,718 square miles. Population, 45,717. Annual precipitation, 37.16 inches. Annual mean temperature, 43.3°. Number of farms, 3,675. County seat, Malone.

This county ranks fourth in land area, and is situated on the north line of the state bordering on Canada.

Its surface is mostly level in the northern part, undulating and rolling in the center and broken and mountainous in the eastern portion. There are many streams in the northern part of the county affording abundance of water for the farming section and in the southern and mountainous portion of the county is a large number of lakes, some of them several miles in extent. Dairying is carried on to a large extent in the northern part. There is a large amount of timber in the central and southern portion. The farm valuation is placed at \$17,571.27, a gain of 37.5 per cent. over that of 1900. The average price per acre of improved farm land including buildings is \$32.50. The principal crops raised were corn, 144,646 bushels; oats, 756,302 bushels; wheat, 10,142 bushels; barley, 62,709 bushels; potatoes, 1,433,761 bushels; hay and forage, 107,630 tons. The county ranks high in the production of barley and potatoes. The number of domestic animals reported are as follows: Dairy cows, 28,964; horses, 9,262; swine, 12,893; sheep, 5,233; poultry, 98,495; milk production, 12,715,196 gallons and total receipts from dairy products, \$1,135,644. There are 99 district schools, many churches of all denominations and 14 agricultural organizations, one dairymen's association, one agricultural society and one county fair association. This county has 40 dairy stations and factories. The hardier kinds of apples are grown in abundance and the fruits are easily cultivated. There are ample facilities for marketing. The St. Regis Indians have a reservation of 24,000 acres in the northwest corner of the county.

TOWN OF ALTAMONT

Population 4,691

No. 414 — Farm of 150 acres; located 1 mile from Tupper Lake P. O.; ½ mile from railway station at Tupper Lake Junction, on line of N. Y. & O. and N. Y. C. & H. R. R. R.; 1¼ miles from school; 1 mile from Catholic, Methodist and Presbyterian churches and Jewish synagogue. Highways, good stone road. Nearest village, Tupper Lake, population 3,000, 1 mile distant, reached by highway. Surface of farm, rolling and level. Altitude, 1,650 feet. Soil, dark loam and good. Acres in meadow, 60; in natural pasture, 75; in timber, 15, mostly maple and birch. Acres tillable, 140. Fruit, 8 apple trees. Best adapted to all kinds of truck gardening, hay and oats. Fences, wire, in good condition. House, 32x32, 2 stories, in first-class condition. 3 barns, 2 30x50, and 1 33x60, all in first-class condition. Watered, house, barn and fields, by well and city water. ¼ mile

from Raquette River, 4 miles from Big Tupper Lake. This piece of property is on main road from Tupper Lake Village to Malone, and is an ideal place for a sanatorium or a summer home. If farming is preferred, all milk produced can be sold at 5 to 8 cents per quart. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$18,000. Terms, at least one-half cash. Address Norwood Mfg. Co., Tupper Lake, N. Y.

No. 415 — Farm of 5 acres; located 1¼ miles from Tupper Lake P. O.; 1¼ miles from railway station at Tupper Lake, on line of N. Y. & O. R. R.; 1¼ miles from school, Methodist, Episcopal and Catholic churches. Highways, macadamized, good. Nearest village, Tupper Lake, population 3,000, 1¼ miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,600 feet. Soil, rich. Acres tillable, 5. Fruit, 9 apple trees, 200 gooseberry and currant

bushes, 1 acre of strawberries. Adapted to all kinds of truck gardening. Fences, wire. House, 7-room bungalow, 26x38, fine cellar. Small barn, hen house, 12x36, and cow shed. Watered, house, by well. 100 rods to Raquette River, 3 miles to Tupper Lake. Surrounded by mountains. House is 7 years old, in fine condition; piazza, 10x30; good fishing and deer hunting near. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,500. Terms, cash preferred but will sell for one-half cash, balance on bond and mortgage. Address C. C. Miller, Tupper Lake, N. Y.

TOWN OF BRANDON

Population 872

No. 416 — Farm of 46 acres; located $9\frac{1}{2}$ miles from Skerry P. O., R. D. 4; 7 miles from railway station at Bangor, on line of Rutland Ry.; $1\frac{1}{4}$ miles from school and Protestant church; $1\frac{1}{2}$ miles from butter factory and milk station; $4\frac{1}{2}$ miles from cheese factory; 7 miles from milk condensing plant. Highways, in good condition. Nearest large village, Malone, 9 miles distant, reached by highway. Soil, loam. Acres in meadow, 14; in natural pasture 30; in timber, 2, hard wood, second growth. Acres tillable, 14. 12 fruit trees. Best adapted to corn, potatoes and hay. Fences, wire, good condition. House, 16x24, ell, 12x16, good condition. Outbuildings, barn, 24x26, with leanto, 16x24; hen house, 12x25, new. Watered, house and barn, by well; fields, by Little Salmon River. Occupied by owner. Reason for selling, owner going West. Price, \$1,200. Terms, one-half down, balance on time. Address Jas. Whitcomb, North Bangor, N. Y., R. D. 4.

TOWN OF BURKE

Population 2,840

No. 417 — Farm of 200 acres; located 1 mile from Burke P. O., R. D. 3, and railway station, on line of Rutland R. R.; $\frac{1}{4}$ mile from school; 1 mile from Catholic and Protestant churches, butter factory and milk station. Highways, good. Surface of farm, level and rolling. Altitude, 1,100 feet. Soil, gravel and loam. Acres in meadow, 70; in natural pasture, 50. Acres tillable, 80. Fruit, 60 apple trees. Best adapted to hay, grain and corn. Fences, wire and rail, good condition. 2 houses, 1 20x28, 1 18x30, good condition. Outbuildings, barn, 30x60; barn, 24x36; barn, 30x40; barn, 28x36; silo and hen house, 14x26, good condition.

Watered by springs. Occupied by tenant. Reason for selling, owner wants to retire from farming. Price, \$7,000. Terms, \$2,000 cash, balance on long time. Address Henry Lapier, Burke, N. Y., R. F. D. 3.

No. 418 — Farm of 130 acres; located 5 miles from Burke P. O., R. D. 2, and railway station, on line of Rutland R. R.; $\frac{1}{2}$ mile from school, Methodist church and butter factory; 5 miles from milk station. Highways, good. Surface of farm, level. Altitude, 1,000 feet. Soil, clay and loam. Acres in meadow, 65; in natural pasture, 65. Acres tillable, 65. Fruit, 50 apple trees. Best adapted to hay and grain. Fences, wire and rail, fair condition. House, 26x28, and kitchen, 18x24, good condition. Outbuildings, horse barn, 24x36; cow barns, 30x40 and 28x40. Watered by well. Occupied by owner. Reason for selling, owner cannot do the work. Price, \$5,000. Terms, \$1,500, balance on long time. Address Edward Premo, Burke, N. Y., R. D. 2.

No. 419 — Farm of 50 acres; located 2 miles from Burke P. O. and railway station, on line of Rutland R. R.; $\frac{1}{2}$ mile from school, Protestant church and butter factory; 2 miles from milk station. Highways, good. Surface of farm, level. Altitude, 1,000 feet. Soil, gravel. Acres in meadow, 20; in natural pasture, 10. Acres tillable, 40. Fruit, 20 apple trees. Best adapted to corn and potatoes. Fences, wire and rail, fair condition. House, 30x38, fair condition. Barn, 30x40, fair condition. Watered by well and brook. Occupied by tenant. Reason for selling, owner in other business. Price \$2,000. Terms, \$500 cash and balance in 10 years. Address Frank Proper, Burke, N. Y., R. D. 2.

No. 420 — Farm of 100 acres; located 5 miles from Burke P. O., R. D. 2, and railway station, on line of Rutland R. R.; $\frac{1}{2}$ mile from school and Methodist church; 1 mile from butter factory; 5 miles from milk station. Highways, good. Surface of farm, level. Altitude, 800 feet. Soil, loam. Acres in meadow, 40; in natural pasture, 30. Acres tillable 70. Fruit, 40 apple trees. Best adapted to hay. Fences, wire, fair condition. House, 26x38, fair condition. Outbuildings, barn, 30x40; barn, 28x38, poor condition. Watered by well. Occupied by tenant. Reason for selling,

owner wants to retire. Price, \$3,000. Terms, \$1,000 down, balance easy. Address Fred Wood, Malone, N. Y. Owner will rent with option to buy.

No. 421 — Farm of 100 acres; located 4 miles from Burke P. O., R. D. 2, and railway station, on line of Rutland R. R.; $\frac{1}{4}$ mile from school and butter factory; 4 miles from Catholic and Protestant churches; 4 miles from milk station. Highways, good. Surface of farm, level. Altitude, 800 feet. Soil, clay. Acres in meadow, 40; in natural pasture, 30. Acres tillable, 70. Fruit, 30 trees. Best adapted to hay and grain. Fences, wire, good condition. House, 24x30, good condition. Outbuildings, 2 barns, 1 30x80 and 1 24x36, good condition. Watered, house and barns, by well; fields, by brook. Occupied by owner. Reason for selling, ill health of owner. Price, \$5,000. Terms, \$1,500 down, balance on easy terms. Address Wm. J. Layhon, Burke, N. Y.

No. 422 — Farm of 110 acres; located 2 miles from Burke P. O., R. D. 3, and railway station, on line of Rutland R. R.; $\frac{3}{4}$ mile from school; 2 miles from Methodist church, butter factory and milk station. Highways, good. Surface of farm, level. Altitude, 900 feet. Soil, clay loam. Acres in meadow, 50. Acres tillable, 110. Best adapted to hay and grain. Fences, wire, good condition. House, 24x32, fair condition. Outbuildings, barn, 30x50; barn, 24x36, fair condition. Watered by well. Occupied by owner. Reason for selling, scarcity of help. Price, \$6,000. Terms, \$2,000 down, balance on easy terms. Address Arthur Salls, Burke, N. Y.

TOWN OF DICKINSON

Population 1,609

No. 423 — Farm of 190 acres; $3\frac{1}{2}$ miles from railway station at Dickinson Center; $\frac{1}{2}$ mile from Flag Station, on line of N. Y. & O. R. R.; 1 mile from school; 50 rods from Baptist church; 1 mile from butter factory; $4\frac{1}{2}$ miles from milk station; 5 miles from condensing plant. Highways, good. Nearest village, Dickinson Center, population 500, $3\frac{1}{2}$ miles distant, reached by highway. Surface of farm, rolling. Soil, sandy and clay loam. Acres in meadow, 30; in natural pasture, 90; in timber,

40, mostly maple, some ash, beech and basswood. Acres tillable, 60. Fruit, a good variety of apples. Best adapted to hay, corn, potatoes, oats and other grains. Fences, rail and wire, in fair condition. House, main part, 24x30, wood shed and kitchen attached, in good condition. Barns, 1 24x32; 1 24x36, shed, 40 feet, attached; 1 30x40; all in fair condition. Watered, house and barns, by wells; fields, by 2 brooks. 18 cows included for price given. Crushed stone road now being built leads past farm. Occupied by tenant. Reason for selling, owner unable to work farm. Price, \$6,000. Terms, \$1,000 cash, balance on easy terms. Address O. W. Saunders, Moira, Franklin Co., N. Y. Owner will rent on shares.

No. 424 — Farm of 250 acres; located $2\frac{1}{2}$ miles from Dickinson Center P. O.; $2\frac{1}{2}$ miles from St. Regis Falls and Dickinson Center, on line of N. Y. & O. R. R.; 2 miles from school, Methodist, Baptist and Catholic churches; $2\frac{1}{2}$ miles from butter factory. Highways, good. Nearest village, St. Regis Falls, population 2,000, 2 miles distant, reached by highway. Surface of farm, rolling. Soil, rich loam. Acres in meadow, 75; in natural pasture, 75; in timber, 100, birch, beech, maple, spruce and hemlock. Acres tillable, 75. Fruit, small apple orchard. Best adapted to wheat, barley, rye, oats, corn and potatoes. Fences, wire, in good condition. House, 18x24, ell, 20x26, in good condition. Barn, 40x80, ell, 46x54, with shed, in good condition; dairy house, 18x30; granary, 14x24; both in good condition. Watered, house, by well; barns, by running water. This farm is located at the foot of the Adirondack Mountains, 2 miles from St. Regis River. Occupied by owner. Farm is keeping 30 cows, 15 head of young cattle and 2 teams. Good market for timber and wood. Reason for selling, owner has other business. Price, \$7,000. Terms, one-third cash, balance on good security. Address B. L. Orcutt & Sons, Dickinson Center, N. Y.

No. 425 — Farm of 196 acres; located $\frac{1}{2}$ mile from Dickinson Center P. O., R. D. 2, and $\frac{3}{4}$ mile from railway station, on line of N. Y. & O. R. R.; $\frac{1}{2}$ mile from school and churches; 1 mile from butter factory. Highways, in good

condition. Nearest large village, Malone, population about 7,000, 17 miles distant, reached by rail and highway. Surface of farm, part level and part rolling. Soil, loam muck. Acres in meadow, 50; in natural pasture, 90; in timber, 33, about 2,000 sugar maples. Acres tillable, 50. Fruit, 50 apple trees. Best adapted to corn, oats, barley, hay and potatoes. Fences, wire, rail and wall. Large house, 16 rooms, bath, good condition. Outbuildings, 3 barns, 1 large shed and granary, good condition. Watered, house, by 2 cisterns; barns, by well; fields, by spring and brook. Occupied by owner. Fine trout brook runs through farm. For price and terms address Chas. D. Bacon, Dickinson Center, N. Y. Owner will rent on shares or with option to buy.

TOWN OF MALONE

Population 10,154

No. 426 — Farm of 150 acres; located $3\frac{1}{2}$ miles from Malone P. O., R. D. 1; $3\frac{1}{2}$ miles from railway station at Malone, on line of N. Y. C. & H. R. R. R. and Rutland R. R.; $1\frac{1}{2}$ miles from school; $3\frac{1}{2}$ miles from several churches; $1\frac{1}{2}$ miles from butter factory; 3 miles from milk station. Highways, good. Nearest large village, Malone, population 7,000, 3 miles distant, reached by highway. Surface of farm, mostly level. Altitude, 700 feet. Soil, part heavy, part light. Acres in meadow, 30; in natural pasture, 65; in timber, 15, mostly maple; acres tillable, 70. Fruit, 25 trees, common varieties of fruit. Best adapted to corn, grain and hay. Fences, wire and rail, in fair condition. House, $1\frac{1}{2}$ stories, 24x36, in good condition. Barns, 1 25x75; 1 26x36; 1 30x45; 1 26x36; in fair condition; hop kiln, 20x50. Watered, house, by well; barns, by spring; fields, by brook. Trout River on west boundary. Unoccupied. Reason for selling, to settle an estate. Address Jas. Lavery, executor, Malone, N. Y., R. D. 1. Owners will rent.

No. 427 — Farm of 64 acres; located 3 miles from Malone P. O. and railway station, on line of Rutland and N. Y. C. R. R.; 1 mile from school; 3 miles from churches and milk station; 2 miles from butter factory; 4 miles from milk condensing plant. Altitude, about 700

feet. Soil, gravel loam. Acres in meadow, 40; in natural pasture, 24. Acres tillable, 45. Best adapted to hay, corn, potatoes and grain. Fences, wire and rail, fair condition. House, $1\frac{1}{2}$ stories, fair condition. Outbuildings, barn, 30x40, and barn, 24x30, fair condition. Watered, house and barn, by well; fields, by brook. Occupied by owner. Reason for selling, owner in other business. Price, \$4,500. Terms, \$1,500 down, balance on mortgage. This price will include stock, tools, furniture in house, crops, etc. Price includes 13 head of cattle, 2 horses, 2 pigs and 50 hens. Address Fred H. Wing, Malone, N. Y., R. D. 3.

*No. 428 — Farm of 120 acres; located in village of Malone which is on line of N. Y. C. and Rutland R. R.; $\frac{1}{2}$ mile from butter factory and 1 mile from milk station. Surface of farm, level. Altitude, 700 feet. Soil, part heavy and part light. Acres in meadow, 110, in natural pasture, 10; 18 acres in hops. Acres tillable, 110. Several fruit trees. Best adapted to hops, hay and grain. Fences, rail and wire, good condition. House, 2 stories, good condition. Outbuildings, large horse barn, hay barns and hop kiln, all in first-class condition. Village water in house and barn. Occupied by tenant. Reason for selling, to close an estate. Price \$20,000, including farming tools and furniture in house. Terms, cash. Address A. B. Parmelee & Son, Malone, N. Y.

*No. 429 — Farm of 82 acres; located 4 miles from Malone P. O., R. D. 2, and railway station, on line of N. Y. C. and Rutland R. R.; $\frac{1}{2}$ mile from school; 4 miles from churches, butter factory and milk station. Highways, good. Surface of farm, level. Altitude, 700 feet. Heavy soil. Acres in meadow, 50; in natural pasture, 32. Acres tillable, 50. Some fruit. Best adapted to hay, grain and corn. Fences, rail, fair condition. House, $1\frac{1}{2}$ stories, good condition. Outbuildings, horse barn and cow barn, fair condition. Watered by well and brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,000. Terms, \$2,000 cash, balance on mortgage. Address A. B. Parmelee & Son, agents, Malone, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

*No. 430 — Farm of 75 acres; located 4 miles from Malone P. O. and railway station, on line of N. Y. C. and Rutland R. R.; 1 mile from school; 4 miles from churches, butter factory and milk station. Highways, good. Surface of farm, rough and rolling. Altitude, 800 feet. Soil, heavy. Acres in meadow, 25; in natural pasture, 40; in timber, 10, hard wood. Acres tillable, 25. Best adapted to hay, potatoes and grain. Fences, rail, fair condition. House, $1\frac{1}{2}$ stories, fair condition. Barn, in fair condition. Watered by well and brook. Price, \$1,800. Terms, \$100 down, balance on mortgage. Address A. B. Parmelee & Son, agents, Malone, N. Y.

TOWN OF MOIRA
Population 2,346

No. 431 — Farm of 700 acres; located $\frac{1}{3}$ mile from Moira P. O.; $\frac{3}{4}$ mile from

railway station at Moira, on line of Rutland R. R.; $\frac{1}{3}$ mile from school, churches and milk station; 2 miles from butter factory. Highways, new State road. Surface of farm, $\frac{1}{2}$ rolling, $\frac{1}{2}$ river bottom flats, overflowed annually. Altitude, about 600 feet. Soil, good, lime uplands, clay river bottom. Acres in timber, 60. Acres tillable, 350. Adapted to any crops grown in this climate. Fences, good. Large house, good condition. Outbuildings, large and in good condition. Watered by well and brook. A costly stone residence in the village would be sold with or without the farm and two together would make a fine country seat and fancy stock farm for wealthy gentleman. Occupied by tenant. Reason for selling, ill health. Price, \$35,000. Terms, \$15,000 down, balance on easy payments. Address Wm. S. Lawrence, Moira, N. Y. Owner will rent.

FULTON COUNTY

Area, 544 square miles. Population, 44,534. Annual precipitation, 50.62 inches. Annual mean temperature, 46.1°. Number of farms, 1,932. County seat, Johnstown. Located north of the Mohawk river, 45 miles west from Albany.

Its surface features are a rolling and hilly upland in the southern portion rising into a mountainous region in the north. In this part of the county are a large number of lakes forming a characteristic feature of the entire wilderness region of northern New York. The soil in the southern part and along the valleys is mostly a gravelly clay loam and is well adapted to pasturage and dairying, and in the more favorable localities produces excellent crops of grain. Manufacturing is carried on to a large extent, especially in gloves and mittens. More of these commodities are manufactured in Gloversville, Johnstown and the vicinity than are made in all the remainder of the United States. In the northern portion of the county are large tracts of fine timber chiefly owned by the state, though as in other mountain counties private parties have holdings. There are ample facilities for marketing all manufactured and agricultural products. The total valuation of farm property is \$6,808,265. The average price of farm lands per acre including buildings is \$25.30. These figures show a slight increase in value over that given in 1900. The principal crops are corn, 121,209 bushels; oats, 218,517 bushels; buckwheat, 44,879 bushels; potatoes, 271,868 bushels; hay and forage, 50,479 tons. The number of farms reporting domestic animals is 1,741; dairy cows, 9,835; horses, 4,064; swine, 4,344; poultry, 67,193; milk produced, 4,533,935 gallons. Receipts from the sale of dairy products, \$383,131. There are nine milk stations and factories in the county. In the lower portion there are considerable quantities of apples and small fruits raised. There are 99 district schools and five agricultural organizations. In the larger villages are high schools and academies. The county is noted for its salubrious climate and is the location to which a large summer population go. Sacandaga Park located on the river bearing its name is a noted summer resort.

TOWN OF BROADALBIN
Population 1,845

No. 432 — Farm of 116 acres; $\frac{1}{2}$ mile from Union Mills P. O., 3 miles from Broadalbin. Soil, sandy loam, adapted to general farming. Watered by good springs. Price, \$1,700. Terms, part cash, balance on time. Address David

Blair, Broadalbin, N. Y. Owner will rent for cash, on shares or with option to buy.

TOWN OF EPHRAATAH
Population 1,312

No. 433 — Farm of 241 acres; located $\frac{3}{4}$ mile from Garoga P. O.; 8 miles from railway station at Johns-

* Indicates farm is in hands of agent or real estate dealer.

town, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school and Methodist church; $2\frac{1}{2}$ miles from creamery. Highways, in fair condition. Surface of farm, hilly, rolling and level. Soil, sand and sand loam. Acres in meadow, 150; in natural pasture, 20; in timber, 15; pine, hemlock, beech and maple. Acres tillable, 56. Fruit, 70 apple trees. Best adapted to oats, buckwheat, corn and rye. Fences in fair condition. Barn, 105x55. Watered, by well and brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,000. Terms, cash. Address Emily Dorn, Garoga, N. Y.

No. 434 — Farm of 276 acres; located 1 mile from Garoga P. O.; 8 miles from railway station at Johnstown, on line of N. Y. C. R. R.; 1 mile from school and Methodist church; 3 miles from creamery. Highways, somewhat hilly, but in fair condition. Surface of farms, some hilly and rough, some level. Soil, some sandy, mostly black loam. Acres in meadow, 90; in natural pasture, 40; in timber, 6, pine, hemlock, basswood, beech and maple. Acres tillable, 134. Fruit, apples. Best adapted to hay, oats, corn, buckwheat and barley. Fences in good condition. House, main part, 40x30, with wing, 25x40. Outbuildings, barn, 40x60; barn, 25x40. Watered, house by well; barns, by spring; fields, by small stream. Occupied by owner. Reason for selling, ill health of owner. Price, \$6,000. Terms, cash or good security. Address James Dorn, Garoga, N. Y.

TOWN OF MAYFIELD

Population 2,065

No. 435 — Farm of 150 acres; located $1\frac{1}{2}$ miles from Mayfield P. O., R. D. 2; 2 miles from railway station at Mayfield, on line of F., J. & G. Ry.; 6 miles from butter factory and milk station. Highways, farm is $\frac{1}{2}$ mile from macadamized road. Nearest city, Gloversville, 6 miles distant, population 19,000, reached by rail and highway. Surface of farm, nearly level. Altitude, about 800 ft. Soil, clay and heavy loam, north end, gravel. Acres in meadow, 125; in timber, 25, maple, birch and hemlock. Fruit, 200 fine grafted apple trees. Best adapted to hay and grain. Fences, mostly wire, good condition. House, $1\frac{1}{2}$

stories, 12 rooms, fair condition. Outbuildings, 2 large barns; 1 horse barn; 1 wagon house; hog house and hen house. Watered, house, by well; barns, by trout stream. Reason for selling, owner in other business. Price, \$4,500. Terms, \$1,000 cash, balance on easy payments. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 436 — Farm of 60 acres; located 2 miles from Mayfield P. O., R. D. 1 and railway station, on line F., J. & G. Ry.; 2 miles from school and churches. Highways in good condition. Nearest city, Gloversville, 8 miles distant, population about 19,000, reached by rail and highway. Surface of farm, part level and part rolling. Soil, heavy loam. Acres in meadow, 40; in natural pasture, 10; in timber, 10, pine, spruce, hemlock, elm and other hardwood. Acres tillable, 40. Fruit, 25 apple trees; a few pears and grapes. Best adapted to hay, oats, corn, potatoes and buckwheat. Fences, wire, good condition. House, $1\frac{1}{2}$ stories, 10 rooms. Outbuildings, barn, 20x45; hay barn; hog house and hen house. Watered, house and barn by running water; fields, by springs and creek. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$2,000. Terms, arrangements can be made to leave part on mortgage. The cars will stop if flagged at a crossing, 5 minutes walk from the house. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 437 — Farm of 212 acres; located 3 miles from Mayfield P. O.; R. D. 2 and railway station; on line of F., J. & G. R. R.; 20 rods from school; 3 miles from Protestant church. Highways, macadamized road. Nearest city, Gloversville, 9 miles distant, population about 19,000 reached by rail and highway. Soil, clay loam; lowlands. Acres in meadow, 80; in timber, 125, pine, hemlock, elm and hardwood. Acres tillable, 80. A few fruit trees. Best adapted to hay, oats, corn and dairying. Fences, wire and rail. House, $1\frac{1}{2}$ stories; 8 rooms. Outbuildings, large barn; wagon house; hen house; hog house and ice house. Watered, house, by well; barns, by well and spring; fields, by springs and creek. Occupied by owner. Reason for selling, owner

* Indicates farm is in hands of agent or real estate dealer.

in other business. Price, \$3,000. Terms, cash. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 438 — Farm of 90 acres; located $\frac{3}{4}$ of a mile from Mayfield P. O.; R. D. 2; $1\frac{1}{4}$ miles from railway station at Mayfield; on line of F., J. & G. Ky.; $\frac{1}{2}$ mile from school; $\frac{3}{4}$ mile from Protestant churches. Highways, macadamized. Nearest city, Gloversville, 6 miles distant, population about 19,000, reached by rail and highway. Surface of farm, slightly rolling. Altitude, about 800 ft. Soil, clay and sandy loam. Acres in meadow, 40; in natural pasture, 25; in heavy timber, 25, hemlock, spruce, maple and beech. Acres tillable, 40. Fruit, about 50 to 60 apple trees. Best adapted to hay, oats, corn and potatoes. Fences, wire and stone wall. House, 2 stories, cost \$5,000, also tenant house. Outbuildings, large barn, with basement; wagon house and sheds. Watered, house, by well and cistern; barns, by well; fields, by springs and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,500. Terms, \$1,000 down, balance on easy payments. Will sell farm without timber for \$3,000. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 439 — Farm of 76 acres; located 1 mile from Cranberry Creek P. O., R. D. No. 2 and railway station, on line of F., J. & G. R. R.; 1 mile from school and Protestant churches. Highway, macadamized. Nearest city, Gloversville, 12 miles distant, reached by rail. Surface of farm, slightly rolling and level. Soil, clay loam. Acres in meadow, 56; in natural pasture, 10. Acres tillable, 10. Fruit, 12 apple trees. Fences, woven wire, good. House, $1\frac{1}{2}$ stories, 10 rooms, newly shingled last year. Outbuildings, barn, 36x26; cow barn, 26x13; new corn house; poultry house; ash house and hog pen. Watered, by well. Occupied by owner. Reason for selling, owner wants to go into other business. Price, \$1,600. Terms, upon application. Address H. L. Reed, agent, Amsterdam, N. Y.

* No. 440 — Farm of 108 acres; located 2 miles from Gloversville P. O., R. D. No. 3 and railway station, on line of F., J. & G. R. R.; 150 rods from

school; 2 miles from churches, butter factory and milk station. Highways, macadamized. Surface of farm, large part level, pasture side hill. Altitude, 800 ft. Soil, clay and gravel. Acres in natural pasture, 20; in timber, 3, second growth, hardwood. Acres tillable, 75. Fruit, 15 grafted apple trees and 150 common apple trees. Best adapted to dairying or gardening. Fences, wire, good. House, new 2 stories, 9 rooms. Outbuildings, barn, 30x75; wagon house; store house; ice house; hen house and slaughter house. Running water in house and barns; fields watered by springs and creek. Occupied by owner. This farm is 3 miles from Adirondack Mountains. Reason for selling, ill health. Price, \$6,000. Terms, \$1,000 down, balance on easy payments. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 441 — Farm of 165 acres; located $2\frac{1}{4}$ miles from Mayfield P. O., R. D. No. 1 and railway station, on line of F., J. & G. R. R.; $\frac{1}{4}$ mile to railroad crossing where cars stop by flagging; $\frac{1}{2}$ mile to school; $2\frac{1}{4}$ miles from Protestant churches; $3\frac{1}{2}$ miles from butter factory. Highways, good. Nearest city, Gloversville, 8 miles distant, reached by rail and highway. Surface of farm, level. Altitude 745 ft. Soil, clay, muck and some sand. Acres in natural pasture, 65; enough small timber for farm use. Acres tillable, 100. Fruit, a few apple trees. Best adapted to hay, grain and dairying. Fences, mostly wire. House, $1\frac{1}{2}$ stories, good condition. tenant house, 8 rooms, good condition. Outbuildings, barn, 40x50; barn, 36x40; shed, 18x30; hen house, 11x20. Watered, house by well and cistern; barns, by well; fields, by two creeks. This farm is 3 miles from Adirondack Mountains. Occupied by owner. Reason for selling, owner desires to go into other business. Price, \$4,500. Terms, part down. Address G. W. Haines, agent, Mayfield, N. Y.

* No. 442 — Farm of 80 acres; located $2\frac{1}{2}$ miles from Mayfield P. O., R. D. No. 2 and railway station, on line of F., J. & G. R. R.; 80 rods from school; $2\frac{1}{2}$ miles from Protestant church. Nearest city, Gloversville, 8 miles distant, reached by rail and highway. Surface

* Indicates farm is in hands of agent or real estate dealer.



FIG 128.—HOUSE ON FARM NO. 438,
TOWN OF MAYFIELD, FULTON
COUNTY.



FIG. 129.—BUILDINGS ON FARM NO. 342, TOWN OF KORTRIGHT,
DELAWARE COUNTY.

of farm rolling. Soil, heavy loam. Acres in timber, 25. Acres tillable, 50. Fruit, 25 to 30 apple trees. Adapted to general farming. Fences, stone and wire. House, 2 stories, 16 rooms, good repair. Outbuildings, barn, 30x40; cow barn, 25x40, and wagon house. Watered, house and barn by running water; fields, by springs and trout creek. This farm is a short distance from Adirondack Mountains. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500. Terms to suit purchaser. Address G. W. Haines, agent, Mayfield, N. Y.

*No. 443—Farm of 90 acres; located $\frac{3}{4}$ mile from Mayfield P. O., R. D. No. 1 and railway station, on line of F., J. & G. R. R.; $\frac{3}{4}$ mile from school; 3 miles from two Protestant churches. Highways, good. Nearest city, Gloversville, $6\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 745 ft. Soil, heavy loam. Acres in natural pasture, 15; in timber, 5, hardwood. Acres tillable, 75. Fruit, about 12 apple trees. Best adapted to dairying. Fences, wire, some stone walls. House, 2 stories, 12 rooms, good condition. Outbuildings, large barn with basement; horse barn; wagon house; hog house and hen house. Watered, house by well and cistern; barn by running water; fields, by spring and creek. This farm is 3 miles from Adirondack Mountains. Reason for selling, death of owner. Price, \$4,000. Terms to suit purchaser. Address G. W. Haines, agent, Mayfield, N. Y. Owner will rent.

TOWN OF NORTHAMPTON

Population 2,228

No. 444—Farm of 70 acres; $1\frac{1}{2}$ miles from P. O. and Sacandaga Park; $\frac{1}{2}$ mile from school. Good sandy loam soil. Good roads. Ten acres timber; balance meadow and pasture. Fences, mostly wire. Young apple trees in bearing and small fruits. House, 36x26, with large wing; piazza on front and one end; all in fairly good condition; well shaded by maples. Barns, 30x40, and 26x36. Water at house and barn. This farm would make an ideal summer boarding house or summer home. It is the first place outside the village limits. Will sell all or part of the land to suit buyer. Price, including

all farm tools, \$1,800. Name and address of owner, M. B. Merrill, Northville, N. Y.

TOWN OF OPPENHEIM

Population 1,241

*No. 445—Farm of 140 acres; $2\frac{1}{2}$ miles from Lassellsville P. O., R. D. 2; $5\frac{1}{2}$ miles from railway station at St. Johnsville, on line N. Y. C. R. R.; 2 miles from school; 5 miles from condensing plant. Highways, good. Nearest village, St. Johnsville, population 3,000, reached by highway. Surface of farm, hilly. Soil, sandy loam. Acres in meadow, 40; in natural pasture, 75; in timber, 25, cedar; acres tillable, 40. Best adapted to corn, potatoes, oats. No buildings. Watered, house, by well; barns, by spring; fields, by creek. Reason for selling, to close an estate. Price, \$1,000. Terms, cash. Name and address of agent, Harwood Dudley, Johnstown, N. Y. Owner will rent for cash or on shares.

No. 446—Farm of 135 acres; located 5 miles from St. Johnsville P. O., R. D. 3; 5 miles from railway station at St. Johnsville, on line of N. Y. C. & H. R. R. R.; $\frac{1}{2}$ mile from school and Methodist church; 4 miles from cheese factory; 5 miles from milk station and condensing plant. Highways, good. Nearest village, St. Johnsville, population, 3,000, 5 miles distant, reached by highway. Surface of farm, level. Altitude, 1,075 feet. Soil, muck and clay. Acres in meadow, 85; in natural pasture, 50; in timber, 5; acres tillable, 100. Fruit, 100 apple trees, 25 plum trees, 15 pear trees, also 10 butternut trees. Best adapted to hay, grain and potatoes. Fences, wire, cedar posts, in first-class condition. House, main, 30x40, wing, 30x20, wing, 30x18, in first-class condition. Barn, main, 75x45; wagonhouse, 30x25; barn, 40x25; ice-house and chicken house, good condition. Watered, house, by well and spring; barn, by spring; fields, by running water, brooks and ponds. Near Mohawk river and Canada Lakes. One of the best hay producing farms in the Mohawk Valley. Occupied by owner. Reason for selling, owner intends engaging in other business. Price, \$4,000. Terms easy, will take mortgage. Address John W. Vaughan, St. Johnsville, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 447 — Farm of 200 acres, 4 miles from Middle Sprite P. O., R. D. 1; 5 miles from railway station at Dolgeville, on line of Dolgeville & Little Falls R. R.; 2 miles from school and Methodist and Catholic churches; 6 miles from milk station and condensing plant. Highways, hilly. Nearest village, Dolgeville, population 3,000, reached by highway. Surface of farm, hilly. Soil, light sandy loam. Acres in meadow, 75; in natural pasture, 100; in timber, 25, hardwood; acres tillable, 100. Fruit, apples. Best adapted to grain. Fences, not good. Well water and creek. Fair barn. Adirondack Mountains and Canada Lakes near. Reason for selling, to close an estate. Price, \$1,000. Owner will rent for cash, on shares or with option to buy. Name and address of agent, Harwood Dudley, Johnstown, N. Y. Owner will rent.

* No. 448 — Farm of 100 acres; 6 miles from St. Johnsville P. O., R. D. 3; 6 miles from railway station at St. Johnsville, on line of N. Y. C.; 5 rods from churches; 2 rods from school; 6 miles from condensing plant. Highways, good. Nearest village, Dolgeville, population about 3,000, distant 5 miles, reached by highway. Surface of farm, rolling. Soil, sandy loam. Acres in meadow, 65; in natural pasture, 25; in timber, 10, hemlock and maple. Acres

tillable, 50. Fruit, apples. Best adapted to corn, oats and potatoes. Fences, good. Large brick house, in good condition. Large barn, 75 feet long, in good condition. Watered, house, barn and fields by well and creek. Near Adirondack Mountains and Canada Lakes. Occupied by owner. Reason for selling, to settle estate. Price, \$5,000. Name and address of agent, Harwood Dudley, Johnstown, N. Y. Owner will rent for cash or on shares, or with option to buy.

TOWN OF PERTH

Population 695

* No. 449 — Farm of 172 acres; located $5\frac{1}{2}$ miles from Amsterdam, P. O., R. D.; 3 miles from railway station at Akin, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school and churches. Surface of farm, rolling. Soil, loam. Acres in natural pasture, 20; in timber, 10, hard and soft wood. Acres tillable, 10. Fruit, 25 apple and 8 pear trees. Fences, wire, fair. House, $1\frac{1}{2}$ stories, good condition. Outbuildings, barn, 40x60; barn, 28x40; horse stable, 25x40; hog pen and cow barn, 20x36; all in fair condition. Watered by well and creek. Occupied by owner's son. Reason for selling, advanced age of owner. Price, \$7,000. Terms upon application. Address H. L. Reed, agent, Amsterdam, N. Y.

GENESEE COUNTY

Area, 507 square miles. Population, 37,616. Annual precipitation, 34 inches. Annual mean temperature, 50°. Number of farms, 3,250. County seat, Batavia.

Located in the upper western part of the state.

The surface is mostly level or gently rolling and undulating. The southern part is occupied by ranges of hills, which have an elevation of 200 or 300 feet above the valley. A limestone terrace extends east and west through the county and building stone is extensively obtained from the outcropping ledges of this terrace. The surface is generally covered with a thick drift deposit and the underlying rocks only appear in the ravines of the streams. Nearly all the swamps contain thick deposits of muck and marl, furnishing in abundance the element for future fertility. The soil of the county is generally a very deep and fertile sandy or gravelly loam, intermixed with clay. This county embraces a portion of the celebrated "Genesee Country," which from the first settlement has been famed for its fertility. For many years wheat formed the staple product, but since the opening of the wheat lands of the west this product has gradually given way to a more profitable production of fruit and dairying. The county is well watered and its products find ready sale in the enormous markets that are within short shipping distance over railroads and trolley lines that traverse the county in every direction. The value of farm land including buildings is \$25,044,508. The average price per acre of farm property is \$71.43; twelve years ago it was \$40.41. Showing that farm property in this county has almost doubled in value within the past ten years. The principal

* Indicates farm is in hands of agent or real estate dealer.

crops are corn, 388,719 bushels; oats, 698,648 bushels; wheat, 708,786 bushels; barley, 56,997 bushels; dry beans, 234,101 bushels; rye, 16,778 bushels; potatoes, 1,217,790 bushels; hay and forage, 92,123 tons. There are 3,052 farms reporting domestic animals, dairy cows, 13,768; horses, 12,988; swine, 12,770; sheep, 38,916; poultry, 166,902; milk from the dairies, 6,897,768 gallons, and the total receipts from the sale of dairy products, \$592,060. There are 124 district schools, graded schools, academies and union schools located in many of the towns. There are 15 agricultural organizations whose purpose is to conserve the interest of the farmer. Land values in this county are increasing very rapidly.

TOWN OF ALABAMA

Population 2,231

* No. 450—Farm of 87 acres; located $\frac{1}{2}$ mile from Basom P. O.; 9 miles from railway station at Medina, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and church. Highways, good. Surface of farm, level. Soil, gravelly loam. Acres in natural pasture, 10; Acres tillable, 60. Fruit, 2 acres. Adapted to all crops grown in this climate. Fences, wire and rail. House, 8 rooms, good condition. Outbuildings, barn, 40x80; hen house and hog pen. Watered by well and creek. Occupied by owner. Price, \$6,200. Terms, \$2,000 down, remainder on time. Address Fdoyd H. Stafford, agent, Medina, N. Y.

TOWN OF ALEXANDER

Population 1,362

No. 451—Farm of 120 acres; located 2 miles from Alexander P. O., R. D. No. 1; $1\frac{1}{4}$ miles from railway station at Linden, on line of Erie R. R.; $1\frac{1}{4}$ miles from butter factory, milk station and milk condensing plant; 2 miles from cheese factory and Protestant churches; 4 miles from Catholic church. Highways, in good condition. This farm is 8 miles from Batavia and 31 miles from Buffalo, reached by rail and highway. Surface of farm, part rolling, balance level. Soil, loam, gravel, black, slate, etc. Acres in meadow, 20; in natural pasture, 30; in timber, 3, maple, good. All tillable except 10 acres. Fruit, about 6 acres of apple orchard; large quantity of small fruit for family use, such as pears, plums, cherries, berries, etc. Adapted to general farming. Fences, wire and rail, fair condition. House, 13 rooms, good, except wood house needs slight repairs. Outbuildings, 1 gambrel roof barn, 1 horse barn, granary, tool sheds, etc., all in good condition. Watered by well, cistern, springs and brooks. Occupied by tenant. Reason

for selling, ill health of owner. Price, \$6,000. Terms, \$1,000 down, balance on mortgage at 5% int. Address J. Triftshauer, 185 North Main Street, Hornell, N. Y. Owner will rent.

* No. 452—Farm of 112 acres; located 1 mile from Alexander P. O. and railway station, on line of N. Y. C. & H. R. R. R.; 1 mile from school, milk station and Methodist church; 4 miles from cheese factory. Highways, good. Nearest city, Batavia, 7 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 955 feet. Soil, gravel loam. Acres in meadow, 35; in natural pasture, 15; in timber, 12, second growth beech and maple. Acres tillable, 95. Fruit, 130 trees, general variety, 100 of which are young set 5 to 6 years. Best adapted to beans, oats, corn, potatoes, grain, etc. Fences, mostly wire, good condition. House, 13 rooms, good condition. Outbuildings, main barn, 30x65, with basement; horse barn, 24x34. Watered by wells and springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$7,000. Terms, \$3,000 cash, balance on mortgage at 5% int. Address Garfield Real Estate Co., 1 Exchange Street, Rochester, N. Y.

TOWN OF DARIEN

Population 1,779

No. 453—Farm of 107 acres; located 1 mile from Corfu P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school, churches, butter and cheese factories and milk station. Highways, good. New State road now being built in front of farm. Nearest city, Batavia, population 11,613, 12 miles distant, reached by highway or railway. Surface, rolling. Soil, sandy loam. Acres in natural pasture, 30; in timber, 27, scrub oak and about 50 big oaks. Apple orchard, 30 trees. Best adapted to corn, wheat, oats, grapes, etc. Fences, wire and board, in good condition. House,

* Indicates farm is in hands of agent or real estate dealer.

6-room, in fair condition. Outbuildings are in fair condition. Watered by well. Fine neighborhood, good farms all around the place, valued at \$75 to \$100 per acre. Occupied by tenant. Reason for selling, owner not a farmer. Price, \$5,350. Terms, mortgage for \$1,400 at 6% can remain on place. Address J. H. Blodgett, in care of Underwood Typewriter Co., Buffalo, N. Y.

No. 454 — Farm of 165 acres; located $\frac{1}{4}$ mile from Darien P. O., R. D. 14; $\frac{3}{4}$ mile from railway station at Darien, on line of Erie R. R.; $\frac{1}{3}$ mile from school and churches; 7 miles from butter factory; 3 miles from cheese factory; $\frac{3}{4}$ mile from milk station. Highways in fair condition. Nearest large village, Batavia, .14 miles distant, population about 10,000, reached by rail and highway. Surface of farm, slightly rolling. Soil, gravel loam. Acres in meadow, 23; in natural pasture, 20; in timber, 20, maple, fine sugar bush. Acres tillable, 125. Fruit, about 180 trees. Best adapted to alfalfa, corn, wheat, potatoes and cabbage. Fences, wire, in good condition. House, new, 12 rooms; also 6-room tenant house, good condition. Outbuildings: barn, 40x70; barn, 28x48; ice house, all in good condition. Watered, house by well, barns by hydraulic ram, fields by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$100 per acre. Terms, \$5,000 down, balance on mortgage. Fine fish pond on farm close to house. Address James C. Lathrop, Darien Center, N. Y., Genesee Co.

No. 455 — Farm of 170 acres; located 1 mile from Darien Center P. O., R. D. 12; $\frac{1}{2}$ mile from railway station at Darien, on line of Erie R. R.; 1 mile from school and churches; 3 miles from butter factory and cheese factory; $\frac{1}{2}$ mile from milk station. Highways, in good condition. Nearest large village, Attica, 7 miles distant, population about 8,000, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, gravelly loam. Acres in meadow, 35; in natural pasture, 25; in timber, 35, about 500 sugar maples, beech, elm and ash, mostly first growth. Acres tillable, 110. Fruit, about 8 acres of apples, small plum orchard; also quinces, crab apples and grapes. Best adapted to grain, beans and potatoes. Fences, wire and rail, good condition. House, upright, 32x40,

with wing, 26x40, 2 stories. Outbuildings, basement barn, 40x90, built 5 years ago; silo; ice house; chicken house and pig pen combined; shed, 20x30; and sugar house in woods. Watered, house, by well and cistern; barns, by well; fields, by stream and spring. Occupied by owner. This farm has been in family 97 years. Reason for selling, owner wishes to retire from business. Price, \$10,000. Terms, \$3,000 down, balance on mortgage at 5%. Address Mrs. Wallace Herrington, Darien Center, N. Y.

No. 456 — Farm of 52 $\frac{1}{2}$ acres; located 2 $\frac{1}{2}$ miles from Darien Center P. O., R. D. 10; $1\frac{1}{4}$ miles from railway station at Fargo, on line of D., L. & W. R. R.; 1 mile from school; 2 $\frac{1}{2}$ miles from Catholic and Protestant churches; $1\frac{1}{4}$ miles from milk station. Highways, good. Nearest city, Batavia, 14 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, clay loam and gravel. Acres in meadow, 25; in natural pasture, 3; in timber, 5, maple, beech, etc. Acres tillable, 45. Fruit, apples, pears and cherries. Best adapted to hay, wheat, oats, corn, beans, cabbage, etc. Fences, wire, good condition. House, 8 rooms, good condition. Outbuildings, horse barn, 26x32; cow barn, 24x56, with basement; granary, 20x20; hen house, 12x20; 2 sheds; all in good condition. Watered, house and barn, by wells; fields, by brook and spring. Occupied by owner. Reason for selling, death in family. Price, \$3,500. Terms, \$2,000 down. Address A. D. Brown, Darien Center, N. Y.

No. 457 — Farm of 160 acres; located $1\frac{1}{2}$ miles from Darien Center P. O., R. D. 10; $\frac{1}{4}$ mile from railway station at Webber's Crossing, on line of D., L. & W. R. R.; school across from farm; $1\frac{1}{2}$ miles from Catholic and Protestant churches; $\frac{1}{4}$ mile from milk station. Highways, good. Nearest city, Batavia, 13 miles distant, reached by rail and highway. Surface of farm, level. Fertile soil. Acres in meadow, 70; in timber, 10, elms, maple, beech, etc. Acres tillable, 150. Fruit, over 200 apple trees. Best adapted to hay, wheat, oats, beans, cabbage, etc. Fences, wire, good. House, 14 rooms, first-class condition. Outbuildings, horse barn, tool shed, grain barn, hog pen, hen house, milk house, ice house, good condition. Watered by well and spring. Occupied by owner. Reason

for selling, death in family. For price and terms address A. D. Brown, Darien Center, N. Y.

TOWN OF ELBA
Population 1,384

No. 458 — Farm of 285 acres; 1 mile from West Shore station; 2 miles from Elba P. O., R. D.; 4 miles from Batavia. Soil, rich, black loam and gravel. 100 acres, meadow; 25, pasture; 10, timber; balance in crops. House, 32x62, modern and in first-class repair. Barns, large and fitted for horse and cattle raising. Spring and brook water. Good fences. 2 tenant houses. Price, \$40,000. Terms, part cash, balance on long time. Address Fred B. Parker, Elba, N. Y., R. D.

TOWN OF LEROY
Population 5,442

*No. 459 — Farm of 115 acres; located 5 miles from LeRoy P. O.; 3 miles from railway station at North LeRoy, on line of Lehigh Valley R. R.; 1½ miles from school; 5 miles from Protestant and Catholic churches; 5 miles from butter factory. Highways, good. Surface of farm, rolling. Soil, gravel loam, some stone. Acres in meadow, 20; in natural pasture, 10; in timber, 15, first and second growth maple and elm. Acres tillable, 90. Fruit, 3 acres apples, variety small fruits for family use. Adapted to all crops grown in this climate. Fences, wire and rail, fair condition. House, 9 rooms, fair condition. Outbuildings, basement barn, 30x70, good condition; carriage shed, poultry house, hog house, shed, 16x40, all in fair condition. Watered, house and barn, by well; fields, by spring. Occupied by owner. Reason for selling, owner has other interest. Price \$50 per acre. Terms, \$2,000 down. Address Chapman's Real Estate Agency, LeRoy, N. Y.

*No. 460 — Farm of 85 acres; located 5 miles from LeRoy P. O.; 3 miles from railway station at North LeRoy, on line of Lehigh Valley R. R.; 1 mile from school; 2 miles from Protestant church; 5 miles from butter factory. Highways, good. Surface of farm, rolling. Soil, limestone. Acres in meadow, 20; in timber, 5. Acres tillable, 75. Fruit, 6 acres, 5 acres of which was set in 1911; also variety of fruit for family use. Best adapted to general farming. Fences, partly fenced with wire, good condition. House, 11 rooms, fair condition. Outbuildings, grain, horse and cow barn, 36x50, poultry house and tool shed. Watered by well. Occupied by owner. Reason for selling, owner has other interests. Price, \$60 per acre. Terms, \$2,000 cash, balance on mortgage at 5% interest. There are 5 acres of sugar bush and 2¼ acres of alfalfa. Rural delivery and telephone. Address Chapman's Real Estate Agency, LeRoy, N. Y.

*No. 461 — Farm of 300 acres; located 3½ miles from LeRoy P. O.; 1½ miles from railway station at North LeRoy, on line of Lehigh Valley R. R.; ¾ mile from school; 3½ miles from Catholic and Protestant churches; 3½ miles from butter factory. Highways, good. Surface of farm, generally level, some hill. Soil, gravelly loam and limestone. Acres in natural pasture, 50; in timber, 30, maple, oak and hickory, fair condition. Acres tillable, 225. Best adapted to raising grain and dairying. Fences, mostly wire, fair condition. House, 7 rooms, fair condition. Outbuildings, grain barn, 40x60; cow barn, 30x28; barn, 30x60; sheep shed, 20x80; all in fair condition. Watered by well. Oatka Creek borders farm on one side. Occupied by tenant. Reason for selling, ill health. Price, \$40 per acre. Terms, \$2,000 down. Address Chapman's Real Estate Agency, LeRoy, N. Y.

GREENE COUNTY

Area, 600 square miles. Population, 30,214. Annual precipitation, 42.7 inches. Annual mean temperature, 47.7°. Number of farms, 2,654. County seat, Catskill. Located in the southeastern part of the state, bounded on the east by the Hudson River.

The surface is rugged and diversified, with grand picturesque scenery of the Catskill mountains. A large part of the county is covered with forests. The mountains of Greene County lie in four groups which slope from every side into fertile valleys. Clay loam with occasional deposits of gravel characterize the

* Indicates farm is in hands of agent or real estate dealer.

farming portion of the county. There are also soils of limestone formation. The county is traversed by the West Shore and the Kaaterskill, Stony Clove and Catskill railroads. During the summer months thousands of tourists and summer residents visit this wonderful region, giving the farmers a ready market for all their farm produce in their home town. While not excelling in any particular crop the yield of the staples is very good: corn, 189,104 bushels; oats, 207,583 bushels; buckwheat, 92,452 bushels; rye, 58,468 bushels; potatoes, 160,133 bushels; hay and forage, 62,748 tons. The domestic animals are reported as follows: Dairy cows, 15,423; horses, 6,174; swine, 8,245; sheep, 9,708; poultry, 124,075. Average value of farm land, \$17.44 per acre and of improved land, \$37.93 per acre. Amount of milk produced, 7,588,116 gallons and the total receipts from dairy products of the eight milk stations in the county, \$711,998. There are 144 district schools in the county and an academy at Catskill, also seven agricultural organizations to promote the farmers' interest. The state has recently bought about 100,000 acres in order to preserve the natural beauty of this historic region.

TOWN OF CATSKILL

Population 9,066

*No. 462 — Farm of 236 acres; located $2\frac{1}{2}$ miles from Catskill P. O. and railway station, on line of W. S. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches. Highways, mostly level, some hills, but in good condition. Surface of farm, 96 acres, flats; balance, rolling. Soil, black loam. Acres in meadow, 100; in natural pasture, 15; in timber, 36 some pine, balance hard wood. Acres tillable, 185. Fruit, grapes, 350 apple trees, 75 cherry trees and 25 pear trees. Fences, stone and wire, fair condition. Best adapted to fruit, hay and grain. House, Colonial style, stone, 30x50, excellent condition. Outbuildings, barn, 40x65; barn, 45x57 with basement; stone creamery; shed, two stories; tenant house, etc. Watered, spring water piped to house and barns; fields watered by springs. Occupied by owner. Reason for selling, owner has other business. Price, \$12,000. Terms, \$5,000 cash. For quick sale will include about \$1,000 worth of machinery, tools, horses, wagons etc. Address Frank H. Knox agent, 51 State street, Albany, N. Y.

TOWN OF COXSACKIE

Population 3,620

No. 463 — Farm of about 191 acres and 2 acres muck for fertilizer and pond; located $1\frac{1}{2}$ miles from Climax P. O.; 3 miles from railway station of West Cossackie, on line of W. S. R. R.; $1\frac{1}{2}$ miles from school; 2 or 3 miles from churches of all denominations. Roads, few hills, good. Nearest villages, Cossackie and West Cossackie, about 3 to 4 miles distant, by highway. Surface,

rolling to eastward. Soil, mellow loam. 39 acres of timber, hickory, white oak, rock oak, chestnut and others. Between 300 and 400 apple trees, 100 pear, about 30 plum, and some cherry trees. Can raise rye, oats, corn, buckwheat, potatoes and vegetables of all kinds. Fences, stone, partly good, partly bad. Houses, in fair condition; 1 of 4 rooms, attic and cellar, needs repairs; 1 of 9 rooms, 2 cellars. Large barn, with stalls for 4 horses, poor condition. Plenty of timber to build. House watered by spring water piped to door, and well. Fine view of the Hudson River Valley, 5 miles distant; Catskill Mountains, 15 miles cross country by wagon road. This farm is in a very beautiful location, with fine view; most excellent place for country residence, or for summer boarding house. Good hunting. Occupied by owner. Reason for selling, death of parents. Price, \$5,000. Terms, cash preferred, or will take \$2,000 cash, remainder on first mortgage. Address C. Doolan, Climax, Greene Co., N. Y., or 396 Madison avenue, Albany, N. Y.

TOWN OF DURHAM

Population 1,475

No. 464 — Farm of 140 acres; 1 mile from P. O., on line of Catskill Mountain R. R.; 10 miles from railway station; $\frac{3}{4}$ mile from school and churches; R. D. 1 from Freehold; 1 mile from creamery. Highways, good, rolling. Nearest village, Durham, population about 3,000, 1 mile distant, reached by highway. Occupied by owner. Surface of farm, nearly level. Soil, clay loam fertile. Acres in meadow, 45; in natural pasture, 85; in timber, 10, hem-

* Indicates farm is in hands of agent or real estate dealer.

lock, basswood, elm, hickory and beech; acres tillable, 130. Fruit, 100 apple trees, 25 pear trees, variety of plums, some peaches. Best adapted to grass, corn and all kinds of grain. Fences, wire and rail, in good condition. House, 12 rooms, $1\frac{1}{2}$ stories, first-class condition. Barns: 76x30, with basement and stables for 22 cows, 4 horses, box stall; another, 36x30, with basement. Watered, house, by well and cistern; fields, by springs and brook; barn, by cistern. Catskill Mountains and Berkshire Hills visible from lawn. Crystal Lake and others 8 miles distant. This farm is beautifully located; would make an ideal country residence. Reason for selling, advanced age of owner. Price, \$5,000. Terms to suit buyer. Name and address of owner, O. W. More, Freehold, N. Y.

No. 465 — Farm of 154 acres; located $1\frac{1}{2}$ miles from station, on line of W. S. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from Methodist church; 4 miles from butter factory; $1\frac{1}{2}$ miles from milk station; $1\frac{1}{2}$ miles from Norton Hill village and skimming station. Highways, good. Nearest village, Oak Hill, population, 500, distant 3 miles, by highway. Surface, level, sloping slightly to south. Good soil, 50 acres of meadow; 20 acres of natural pasture; 8 acres of timber, of white oak and pine; 125 acres tillable; 150 apple trees and 150 pear trees, all first-class varieties. Land adapted to raising of rye, corn and oats. Fences, of stone and wire, in good condition. Comfortable 12-room house, $1\frac{1}{2}$ stories, 24x36. Good barn, 72x30; sheep house, 52x18; wagon house, 30x24; granary, 20x16; pig pen, 20x16. House has spring water; barns have water in yard; fields have springs. The Catskill Mountains are 8 miles distant. Farm is located on direct road from Coxsackie to Catskill. Occupied by owner. Reason for selling, owner is too old to work it. Price, \$4,000. Terms, one-half cash, balance on mortgage. Address Barton Miller, Norton Hill, Greene Co., N. Y.

No. 466 — Village farm of 4 acres; located 60 rods from Durham P. O., 10 miles from railway station at Cairo, on line of Catskill Mt. R. R., 100 rods from school, 85 rods from Methodist and Presbyterian churches, $\frac{1}{4}$ mile from butter factory. Highways, good. Nearest large village, Catskill, 18 miles distant, reached by rail and highway. Surface of farm, level. Altitude, 900 ft. Fertile soil.

Acres in meadow, 2. Acres tillable, 4. Fruit, apples, pears, peaches, plums and grapes. Best adapted to fruit raising or gardening. Fences, wire and board. House, 32x28, with wing and broad piazza, 2 stories, bath, hot and cold water, 10 rooms. Outbuildings: barn, 30x20; hen house, all buildings newly painted. Watered, house, by reservoir; barn, by well; fields, by brook. Occupied by owner. Reason for selling, owner wants to move elsewhere. Price, \$2,500. Terms, prefer cash but would take part cash and remainder on mortgage. Address LeRoy Delamater, Freehold, N. Y. Owner will rent with option to buy.

TOWN OF HALCOTT

Population 381

No. 467 — Farm of 218 acres; located 2 miles from Halcott Center P. O.; 5 miles from railway station at Fleischmann's on line of U. & D. R. R.; $\frac{1}{4}$ mile from school; 3 miles from Methodist church; 2 miles from butter factory and milk station; $\frac{1}{4}$ mile from school. Highways, in fair condition. Surface of farm, rolling. Altitude, about 2,000 feet. Soil, red slate. Acres in meadow, 75; in natural pasture, 100; in timber, 50, maple, beech and birch. Acres tillable, 175. Fruit, apples, plums and pears. Adapted to any crop grown in this section. Fences, stone wall and wire, fair condition. House, 3 stories, 24 sleeping rooms, about 26x50. Outbuildings: barn holds 35 cows, good condition. Watered by springs. Occupied by owner. Reason for selling, owner has retired from business. For price and terms address S. S. Ballard, Halcott Center, N. Y.

TOWN OF NEW BALTIMORE

Population 1,936

No. 468 — Farm of 105 acres; located $1\frac{1}{2}$ miles from Grapeville P. O.; 8 miles from railway station at Coxsackie, on line of W. S. R. R. and Hudson River boats; 1 mile from school; $1\frac{1}{2}$ miles from Baptist church; 5 miles from butter factory. Highways, good, partly State road. Nearest large village, Coxsackie, population, 3,000, 8 miles distant, reached by highway. Surface of farm, rolling. Soil, good. Acres in meadow, 54; in natural pasture, 25; in timber, 25, hemlock, pine, chestnut and hard wood; acres tillable, 75. Fruit, 200 apple trees, a few pear, plum and cherry trees, also 4 acres of huckleberries and strawberries; 25 butternut trees. Best

adapted to rye, buckwheat, oats, potatoes, grass and fruit. Fences, stone and wire, in fair condition. House, 10 rooms and closet, painted, stone cellar, in fair condition; Bell telephone. Barns, ample room, in fair condition. Watered, house, by well; barns, by running water; fields, by springs and creek. Pond of 1 acre, 35 to 40-horsepower, 9 miles from Hudson River; 16 miles from Catskill Mountains. Good locality for boarders. Occupied by owner. Reason for selling, poor health of owner. Will sell stock, about 20 head, farming tools, reasonably. It is on mail route No. 1 and is handy to auto bus line, which meets all trains and boats, about 20 miles from Albany. Price, \$35 an acre. Terms, two-thirds cash, balance to suit purchaser. Address E. D. Stewart, Urlton, Greene Co., N. Y.

No. 469 — Farm of 150 acres; situated 2 miles from Medway P. O., and 5 miles from New Baltimore railway station, on line of W. S. R. R.; R. D. Highways, good. Good soil, adapted to general farming. Acres tillable, 125; acres timber, 12, chestnut, oak and pine, medium size. Fruit, 75 apple trees and some other fruit. Occupied by tenant. Fences, stone and rail, fair condition. House, 25x45; wing, 18x20, fair condition; 2 barns, shed and carriage house, in medium condition. Watered by spring, stream and pond. Reason for selling, to settle an estate. Price, \$2,200. Terms, one-third cash, balance easy. Address Burton G. Palmer, Medway, N. Y.

*No. 470 — Farm of 104 acres; located 1½ miles from railway station at New

Baltimore, on line of West Shore R. R., ½ mile from school, 3 miles from Protestant churches, 1½ miles from milk station. Highways, good. Nearest large villages, Coxsackie and Ravena, 5 miles distant, reached by rail and highway. Surface of farm, nearly level. Soil, loam. Acres in meadow, 79; in natural pasture, 10; in timber, 15; some pine, mostly oak and hickory. Acres tillable, 89. Fruit, 7 acre orchard of apples and pears. Adapted to all crops grown in this climate. Fences, mostly wire, good condition. House, 14 rooms, good condition. Outbuildings: barn, 30x50; wagon house, 24x30; barn, 20x30, and 2 large chicken houses, all in good repair. Watered, house, by well; barns, by spring; fields, by springs. Occupied by owner. Reason for selling, owner a widower. Price, \$6,000. Terms, \$3,000 down and balance an mortgage at 5% int. Address M. L. Tator, agent, Middleburgh, N. Y.

No. 471 — Farm of 60 acres; located 40 rods from Medway P. O. and 5 miles from railway station at Coxsackie, on line of W. S. R. R. Highways, in good condition. Soil, clay, gravel, loam and muck. Best adapted to truck or general farming; 50 acres tillable. Some timber, pine and oak. Fruit, apples, pears and plums, about 300 trees. Fences, mostly stone, good repair. Two large barns. No house. Watered by wells and stream. Reason for selling, to close an estate. Price, \$1,500. Terms, one-half down, balance easy terms. Address Burton G. Palmer, Medway, N. Y.

HERKIMER COUNTY

Area, 1,754 square miles. Population, 56,356. Annual precipitation, 50.68 inches. Annual mean temperature, 43.2°. Number of farms, 3,092. County seat, Herkimer.

This county is situated in the northeastern part of the state and is a long, narrow county. It is intersected by the Mohawk and Black Rivers and also drained by the East and West Canada Creeks and the Moose River.

The surface is diversified with high ridges, steep hills, valleys and extensive forests. A large part of the northern portion of the county has the same general features of the other regions of the Adirondacks. The southern part of the county, below the north branch of the West Canada Creek, becomes gently undulating and suitable for agriculture. The soil most commonly found is a yellow clay loam, although in the valleys along the West Canada Creek and the Mohawk River the black slaty loam predominates. The southern part of the county is intersected by the New York Central railroad and the Erie Canal and the northern part by a branch of the New York Central railroad. Electric lines extend from Little Falls through Herkimer to Utica and from Herkimer to Richfield Springs, Otsego county, thus giving ample local markets. The value of all farm property is

* Indicates farm is in hands of agent or real estate dealer.

\$19,607,700, an increase of 30.4 per cent. over the value shown in 1900. The leading crops are corn, 172,573 bushels; oats, 511,560 bushels; barley, 16,699 bushels; buckwheat, 26,793 bushels; potatoes, 520,121 bushels; hops, 15,200 pounds; hay and forage, 190,797 tons. Average price of improved land is \$29.30. Domestic animals reported: Dairy cows, 40,423; horses, 8,213; swine, 9,754; sheep, 2,957; poultry, 134,528; production of milk, 21,747,574 gallons. Total receipts from sale of dairy products, \$2,175,797. There are 92 milk stations and factories in the county, 183 district schools with academies at Herkimer and Little Falls. These with the splendid high schools of the towns and villages offer educational privileges of the highest rank for the residents of the county. The agricultural organizations are made up of a county agricultural society and 20 granges.

TOWN OF COLUMBIA

Population 1,071

*No. 472—Farm of 200 acres; located 6 miles from Ilion P. O.; R. D. No. 2, 4 miles from railway station at Cedarville, on line of D., L. & W. R. R., 1 mile from school, 2 miles from Protestant churches, butter factory, cheese factory and milk station. Highways, good. Surface of farm, rolling. Altitude, 1,200 ft. Soil, clay loam. Acres in meadow, 110; in natural pasture, 66; in timber, 2, hardwood. Acres tillable, 175. Fruit, 25 apple and 6 pear trees. Best adapted to potatoes, grain and hay. Fences, barbed wire. House, 20 rooms, good condition. Outbuildings: basement barn, 80x76; hay barn, 40x70; horse barn, 28x50; wagon house, ice house and tool house. Watered, house and barn, by running water; fields, by spring. Reason for selling, ill health of owner. Price, \$8,000. Terms, \$4,000 down, remainder on mortgage. Large silo on farm. Address Mrs. Clara E. Myers, agent, 160 Otsego St., Ilion, N. Y.

No. 473—Farm of 135 acres; located 6 miles from Ilion P. O., R. D. No. 2, 3 miles from railway station at Cedarville, on line of D., L. & W. R. R., ¼ mile from school, 1 mile from Protestant church, 1½ miles from butter factory and cheese factory, 3 miles from milk station, 8 miles from milk condensing plant. Highways, hilly. Surface of farm, rolling. Soil, clay, good. Acres in meadow, 50; in natural pasture, 65; in timber, 20, maple. Acres tillable, 115. Fruit, apples and pears. Best adapted to corn and potatoes. Fences, wire, good condition. House, 20x30, 2 stories. Outbuildings: basement barn, 30x70; barn, 24x52, good condition; also barn, 20x44. House watered by pump; barns and fields, by pond. Occupied by tenant. Reason for selling, owner in other busi-

ness. Price, \$6,000. Terms, one-third down, balance on mortgage for term of years. Address Chas. D. Hopkins, Cedarville, N. Y.

No. 474—Farm of 165 acres; located 6 miles from Ilion P. O., R. D. No. 2, and railway station, on line of N. Y. C. R. R., ½ mile from school, 2 miles from Protestant church, butter factory and cheese factory, 4 miles from milk station, 8 miles from milk condensing plant. Highways, hilly. Surface of farm, rolling. Soil, light clay. Acres in meadow, 60; in natural pasture, 60; in timber, 40. Acres tillable, 120. Fruit, apples and pears. Best adapted to corn, potatoes and oats. Fences, wire, fair condition. House, 26x36, 1½ stories; house, 18x24, 1½ stores. Outbuildings: barn, 30x66; stables, 16x66. House watered by pump, fields by creek. Occupied by tenant. Reason for selling, owner living in village. Price, \$5,000. Terms, \$1,500 down, balance on mortgage. Address Chas. D. Hopkins, Cedarville, N. Y. Owner will rent.

TOWN OF DANUBE

Population 941

No. 475—Farm of 164 acres; located 1½ miles from Newville P. O., R. D. 5; 5 miles from railway station at Indian Castle, on line of W. S. R. R.; 1½ miles from school, churches and cheese factory; 5 miles from milk station. Highways, good. Nearest city, Little Falls, 7½ miles distant, reached by highway. Surface of farm, fairly level. Soil, loam. Acres in meadow, 90; in natural pasture, 90; in timber, 10, hemlock, pine, hardwood. Acres tillable, 180. Fruit, apples. Best adapted to corn, potatoes and grain. Fences, wire, good condition. House, 24x30, fair condition. Outbuildings: barn, 75x30, poor condition. Watered, house, by well; barn, by run-

* Indicates farm is in hands of agent or real estate dealer.

ning water. Occupied by owner. Price, \$3,000. Terms, one-half down, balance on mortgage. Address D. A. Van Allen, Little Falls, N. Y., R. D. 5.

*No. 476 — Farm of 50 acres; located 5 miles from Frankfort P. O., R. D. 3, and railway station, on line of W. S. R. R.; 3 miles from cheese factory; 5 miles from milk condensing plant. Surface of farm, part level and part rolling. Soil, clay and loam. Acres in meadow, 25; in natural pasture, 20; in timber, 5, hemlock and maple. Acres tillable, 40. Fruit, apples, plums and cherries. Best adapted to hay, oats, barley and potatoes. Fences, wire with cedar posts. House, upright, 24x30, with wings, 16x20 and 12x14, fair. Outbuildings: barn, 26x52, leanto attached, 16x52; hog pen, 14x30, and granary, 12x16, fair condition. Occupied by tenant. Reason for selling, owner unable to work farm. Price, \$2,250. Terms, \$1,000 down, balance on time. Address D. V. Brewer, agent, Frankfort, N. Y. Owner will rent.

TOWN OF FRANKFORT

Population 5,105

No. 477 — Farm of 47½ acres; located 1¼ miles from Frankfort P. O., and railway station, on line of W. S. R. R.; 1 mile from school and butter factory; 1½ miles from Catholic and Protestant churches, milk station and milk condensing plant. Surface of farm, slightly rolling toward the East. Good soil. Acres in meadow, 16½; in natural pasture, 26; in timber, 4, maple; 1 acre of garden. Fruit, 8 apple trees. Best adapted to hay. Fences, wire, good condition. Small farm house, need repairs. Large barn, good condition. Watered by well and spring. Occupied by tenant. Reason for selling, owner lives in village of Frankfort. Price, \$3,250. Terms, \$500 down, balance on time. Address Mrs. Emma Budlong, Frankfort, N. Y.

No. 478 — Farm of 162 acres; located 2 miles from Frankfort P. O., R. D. 4, and railway station, on line of N. Y. C. & H. R. R. R.; ¾ mile from school, 2 miles from milk condensing plant, Catholic and Protestant churches. Highways, somewhat hilly but good. Surface of farm, quite level, just enough slope for

drainage. Altitude, 950 feet. Soil, dark clay loam and black slate. Acres in timber, 10. Acres tillable, 140. About 75 fruit trees. Best adapted to grass, corn, grains. 5 acres of fine alfalfa. Fences, post and wire, good. House, 17 rooms, hot and cold water, bath, slate roof, first class condition. Outbuildings, barn, 30x91, with 73x30 wing, basement under whole; hog pen and storage buildings, all in good condition. Watered by well, cistern and spring brook. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$60 per acre. Terms, ½ or more cash, balance on time. Address P. E. Turtelot, agent, Frankfort, N. Y.

* No. 479 — Farm of 212 acres; located 2 miles from Frankfort P. O., R. D. 4, and railway station, on line of N. Y. C. R. R.; 2 miles from school; ¾ mile from Catholic and Protestant churches; 2 miles from milk condensing plant. Highways, somewhat hilly but good. Surface of farm, level and rolling. Altitude, 950 feet. Soil, dark clay loam. Acres in timber, 30. Acres tillable, 160. Enough fruit for home use. Adapted to anything grown in this climate except potatoes. Fences, post and wire, good. House, 1½ stories, 12 rooms, fair condition. Outbuildings, basement barn, 40x65; horse barn, 24x30, in good condition, and hay barn, 30x48, in fair condition. Watered by well, spring and brook. Reason for selling, owner has other business. Price, \$40 per acre. Terms, about ⅓ down. Address P. E. Turtelot, agent, Frankfort, N. Y.

* No. 480 — Farm of 108 acres; located 5 miles from Frankfort P. O., R. D. 3, and railway station, on line of N. Y. C. R. R.; ½ mile from school; 5 miles from milk condensing plant, Catholic and Protestant churches. Highway laid out for State road. Surface of farm, hilly. Altitude, 750 feet. Soil, gravelly and clay loam. Acres in timber, 10. Acres tillable, 30. Fruit, about 100 apple trees. Best adapted to potatoes, corn and grass. Fences in fair condition. Two houses, 1 nearly new, 8 rooms; 1 old, smaller. Outbuildings, 1 good barn, 30x40; 2 barns, about 30x40; fair condition. Watered by springs. Occupied by owner. Reason for selling, owner has

* Indicates farm is in hands of agent or real estate dealer.

other business. Price, \$2,500. Terms, part cash. Address P. E. Turtelot, agent, Frankfort, N. Y.

TOWN OF GERMAN FLATS

Population 10,160

No. 481 — Place of 5½ acres; located 1½ miles from Ilion P. O., R. D. 1, and railway station, on line of N. Y. C. R. R.; 300 feet from school; 1½ miles from churches; 2½ miles from milk condensing plant. Highways in fair condition. Nearest city, Utica, 12 miles distant, reached by rail and highway. Surface of farm, hilly. Soil, sandy. Acres in meadow, 2; in natural pasture, 3. Acres tillable, 5½. Fruit, about 75 apple trees. Best adapted to fruit and corn. House in good condition. Outbuildings, barn and hen house in good condition. Watered by well. Occupied by owner. Price, \$1,800. Address Mrs. Jas. Vincent, Ilion, N. Y., R. F. D.

TOWN OF LITTLE FALLS

Population 638

No. 482 — Farm of 166 acres; located 7 miles from railway station at Little Falls, on line of W. S. Ry.; R. F. D. passes farm; 50 rods from school and Methodist church; 65 rods from cheese factory; 1 mile from milk station; 7 miles from milk condensing plant. Highways in good condition. Surface of farm, level and rolling. Acres in meadow, 56; in natural pasture, 70; in timber, 6, maple, beech, basswood and hemlock. Acres tillable, 160. Fruit, good apple orchard, also pears and plums. Best adapted to grass, corn, oats and barley. Fences, cedar post and wire, good condition. House, new, 14 rooms, fine condition. Outbuildings: barn, 36x85; cow barn attached, 125x18 feet. Water in house and barn, fields watered by spring. Occupied by tenant. Price, \$46 per acre or \$55 per acre with tools, crops, etc. Address A. B. Davis, 4 John Street, Ilion, N. Y.

TOWN OF NEWPORT

Population 1,490

No. 483 — Farm of 300 acres; located 4 miles from Newport P. O., R. D. 1, and railway station, on line of M. & M. Ry.; 1 mile from school; 4 miles from churches milk station and milk condensing plant; 1½ miles from butter factory; 1 mile from cheese factory. Highways in fair condition. Surface of farm,

rolling. Soil, clay loam. Acres in meadow, 125; in natural pasture, 150; in timber, 25, hardwood and hemlock. Acres tillable, 125. Fruit, 25 apple trees. Best adapted to dairying and grazing. House, 2 stories, with 1½ story wing, good condition. Outbuildings: one barn, 100 feet long, good condition; hay barn and horse barn. Watered, house by well, barns by spring, fields by spring and brook. Occupied by tenant. Price, \$7,000. Terms to suit buyer. Address E. J. Spellman, 131 Rutger Street, Utica, N. Y. Owner will rent.

No. 484 — Farm of 207 acres; located 2 miles from Newport P. O., R. D. 1, and railway station, on line of M. & M. R. R.; 1 mile from school and cheese factory; 2 miles from Catholic and Protestant churches and milk condensing plant. Highways, State road. Surface of farm, level. Soil, clay loam. Acres in meadow, 200; in natural pasture, 7. Acres tillable, 200. Fruit, 25 apple trees. Best adapted to hay, grain and dairying. Fences, wire, good condition. House, 2 stories, good condition. Outbuildings, barn, 90x36; horse barn, 26x32. Watered by spring. Unoccupied. Price, \$10,000. Terms, ½ cash. Address Wm. Fitzgerald, Newport, N. Y.

TOWN OF OHIO

Population 527

No. 485 — Farm of 170 acres; located 9 miles from Poland P. O., R. D. 1, and railway station, on line of M. & M. R. R.; 1 mile from school; 2 miles from churches; 9 miles from milk station. Highways, good. Surface, rolling; meadows, nearly level. Altitude, 1,300 feet. Soil, sandy loam. Acres in meadow, 40; in natural pasture, 90; in timber, 40, hard and soft wood; acres tillable, 100. A few apple trees. Best adapted to oats, rye, buckwheat, corn and potatoes. Fences, wire, in good condition. House, 1½ stories, 22x32; wing, 16x20; in good condition. Barns, one, new, 30x48; one, 44x50; in good condition. Watered, house and barns by running water, fields by springs and streams. Occupied by owner. Reason for selling, scarcity of help and poor health of owner's wife. Cheese factory on farm. Price, \$2,500. Terms, \$1,000 cash, balance on mortgage for five years at 5%. Address Eugene Hemstreet, Cold Brook, Herkimer Co., N. Y. Owner will rent.

No. 486 — Farm of 130 acres; located 9 miles from Hinckley P. O. and railway station, on line of M. & M. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from Methodist church; 9 miles from milk station. Highways, good. Surface of farm, rolling. Altitude, about 1,200 feet. Soil, partly sand and partly loam. Acres in meadow, 30; in natural pasture, 50; in timber, 50, small. Acres tillable, 80. Fruit, small fruit such as berries and currants. Best adapted to oats, barley, buckwheat and potatoes. Fences, wire, fair condition. House, 24x30, good condition. Outbuildings, cow barn, 34x48; horse barn, 24x30; good condition. Watered, house and barn by running water, fields by brooks. West Canada Creek bounds west side of farm. Occupied by owner. Reason for selling, advanced age

and ill health of owner. Price, \$2,000. Terms, $\frac{1}{2}$ cash. Address Cornelius Flansburg, Ohio, N. Y.

TOWN OF WARREN

Population 1,071

No. 487 — Farm of 107 acres; situated in the vicinity of Warren P. O. and Richfield Springs station, on line of D., L. & W. R. R. Loamy soil, adapted to general farming and stock raising. Some fruit; 25 acres timber; 40 acres meadow; 50 acres tillable. House, barns and outbuildings sufficient for farm and in good repair. Well watered. Fairly fenced. Price, \$2,400. Margaret Crouse, owner, Richfield Springs, N. Y., R. D. Owner will rent with option to buy.

JEFFERSON COUNTY

Area, 1,868 square miles. Population, 80,382. Annual precipitation, 40.38 inches. Annual mean temperature, 48.2°. Number of farms, 5,778. County seat, Watertown.

This county is located in the northern part of the state, bounded on the north-west by the St. Lawrence River and on the west by Lake Ontario. The Black and Indian Rivers traverse the county affording abundant water power which has not yet been very greatly developed.

The surface is diversified with gentle undulations, abrupt terraces and deep ravines. Along Lake Ontario and the St. Lawrence River the soil is the same gravelly alluvium found near the shore of the other lake counties. Further inland the surface is generally level or gently undulating. On the second level ranging from 600 to 900 feet above the lake the surface is more rolling and the soil becomes a rich, clay loam. Southeast of this, and extending into Lewis County, the surface is hilly and diversified with deep ravines and abrupt terraces. Clay loam soil still predominates, but much black loam is found. A large part of the county is covered with forest in which ash, oak, pine, hemlock, beech, spruce and sugar maple are found. The well-known Potsdam sandstone is found in this county and also extensive deposits of iron ore.

The following crops were reported: Corn, 240,800 bushels; oats, 2,050,568 bushels; barley, 80,141 bushels; buckwheat, 32,950 bushels; dry beans, 15,632 bushels; potatoes, 789,027 bushels; hay and forage, 341,544 tons. The value of all farm property is \$40,005,331, an increase of 27.6 per cent. over the census of 1900. The average value of improved land in the county is \$43.13 per acre. Domestic animals, dairy cows, 64,855; horses, 17,746; swine, 19,818; sheep, 12,059; poultry, 230,378. Total product of milk, 32,881,485 gallons and the total receipts from the sale of dairy products, \$3,287,056. The county is intersected and traversed in several directions by the R., W. & O. railway lines and trolley lines, giving ample transportation facilities. Watertown, a great railroad center, is the headquarters of the Watertown Produce Exchange, the greatest cheese market in the United States. Along the St. Lawrence shore are located many large hotels and cottages which accommodate the thousands of tourists who annually visit the Thousand Islands, thus a great local market is had for all farm produce. There are 347 district schools in the county with academies at Watertown and Carthage; 168 dairy stations and factories furnish nearby market for milk. There are two county fair societies, one Holstein-Friesian breeder's club, one Patron of Industry, three subordinate granges and one Pomona grange, all organized and worked for some one or more agricultural interest.

TOWN OF ALEXANDRIA

Population 4,259

No. 488 — Farm of 240 acres; located $2\frac{1}{2}$ miles from Alexandria Bay P. O.,

R. D. 1; 6 miles from railway station, on line of N. Y. C. R. R.; $1\frac{1}{2}$ miles to trolley line; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from churches; $2\frac{1}{4}$ miles

from butter factory and cheese factory; 6 miles from milk station. Highways, State road. Several parks and summer homes of wealthy people near this farm, so there is a good market. The nearest large village is Alexandria Bay, located on the St. Lawrence River, a great summer resort for tourists from all over the United States. Surface of farm, rolling. Soil, clay and clay loam. Acres in meadow, 135; in natural pasture, 75; in timber, 30, elm, ash, maple, etc. Acres tillable, 175 to 200. Fruit, some apples and cherries. Best adapted to hay, grain and vegetables. Fences, stone wall, rail, post and wire, good condition. House, 20x30, with wing, 14x32. Outbuildings, ample for size of farm. Watered, house by water piped, barns by pump, fields by springs and creek. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$38 per acre. Terms, from 50 to 75% can remain on mortgage at 5%. Address T. F. Kavanaugh, Alexandria Bay, N. Y. Owner will rent for cash or on shares.

TOWN OF CHAMPION

Population 2,704.

* No. 489—Farm of 370 acres; located 3 miles from Copenhagen P. O.; 5 miles from railway station at Copenhagen, on line of C. & C. R. R.; ¼ mile from school; ½ miles from churches; butter factory and cheese factory on farm. Highways, good. Nearest village, Copenhagen, population 585, 3 miles distant, reached by highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 250; in timber, 50, part hard and part soft; acres tillable, 320. Best adapted to timothy, clover, oats and grain. Fences, excellent. 3 good houses and a cheese factory on farm. Large barn, in excellent condition. Watered, house and barns by wells, fields by springs and creeks. 1½ miles from Pleasant Lake. Will leave 45 cows, 15 head of young cattle, sugaring tools and farming tools. Occupied by owner. Reason for selling, owner unable to give farm proper attention. Price, \$18,500. Terms, \$3,500 cash, balance on mortgage at 5%. Address J. H. McLearn, agent, Gouverneur, N. Y.

TOWN OF CLAYTON

Population 4,028

No. 490—Farm of 153 acres; 4 miles from Cape Vincent station and 10 miles

from Clayton P. O. This farm is located on Carleton Island; has 1 mile shore front on St. Lawrence River. All fine farming land. House, 2 stories, 20x40, with wing, in good repair. Barn, 40x80, stable for 30 cows, new creamery with ice house, gas engine and feed mill, in good condition. Granary, chicken house and hog house. Watered by St. Lawrence River. Price, \$75 per acre. Terms, \$2,000 cash, balance on time. Name and address of owner, F. L. Hall, Clayton, N. Y. Owner will rent on shares.

TOWN OF ELLISBURG

Population 3,634

No. 491—Farm of 179 acres; located 1½ miles from Pierrepont Manor P. O., R. D. 1; 2 miles from railway station, at Pierrepont Manor, on line of R., W. & O. R. R.; 1½ miles from school and Protestant churches; 2 miles from cheese factory and milk station. Highways, somewhat hilly. Surface of farm, rolling. Altitude, about 600 feet. Acres in natural pasture, 50; in timber, 10, maple, beech and basswood. Acres tillable, 113. Fruit, 2 apple orchards. Best adapted to corn, hay, oats, buckwheat and potatoes. Fences, barbed wire. House, 14 rooms, good condition. Outbuildings, not modern, but in good repair: horse barn, 26x36; corn house, 12x18; hen house, 10x30; silo, 16x26. Watered by well and cistern. Reason for selling, to close an estate. This farm is 20 miles from Watertown, which has a population of about 26,000; 9 miles from Adams and ⅓ of a mile from small school. Price, \$6,000. Terms, \$4,000 down, balance on mortgage at 5%. Address Mrs. Hibbard, 209 N. Washington St., Rome, N. Y.

TOWN OF HOUNSFIELD

Population 2,217

No. 492—Farm of 89¼ acres; 1¼ miles from Sacketts Harbor P. O., R. D., and railway station, on line of N. Y. C. & H. R. R.; 1 mile from school; 1¼ miles from Methodist, Episcopal, Catholic and Presbyterian churches; 1 mile from cheese factory. Highways, good. Nearest city, Watertown, 10 miles distant, reached by rail and highway. Surface of farm, level. Soil, limestone and sandy loam. Acres in meadow, 40; in natural pasture, 4. Acres tillable, 85¼. Fruit, 11 apple and 2 pear trees. Adapted to any kind of crops. Fences,

* Indicates farm is in hands of agent or real estate dealer.

mostly wire, some rail. House, 7 rooms, in good condition. Barn, 46x52, stable for 18 cows, in good condition; granary, 14x18. Watered, house, by well; barns, by well; fields, by creek. This farm is 1¼ miles from Lake Ontario. Occupied by tenant. Reason for selling, unable to care for farm. Price, \$3,600. Terms, cash. This farm will carry 18 cows and 3 horses. Address Seymour M. Joy, Sacketts Harbor, N. Y.

No. 493 — Farm of 16 acres; ½ mile from Sacket Harbor P. O., and railway station, on line of N. Y. C. & H. R. R.; ½ mile from school, Catholic and Protestant churches; 2 miles from cheese factory and milk station. Highways, level and in fair condition. Nearest city, Watertown, 10 miles distant, reached by rail and highway. Surface of farm, level. Soil, sandy. All tillable. Fruit, apples, strawberries, etc. Best adapted to grain, vegetables and small fruits. Fences, in good condition. House, 24x37, new. Barn, 28x32, and large poultry house. Watered, house, by cistern; barns, by well. This farm is ½ mile from Lake Ontario. Occupied by owner. Reason for selling, owner cannot attend to farm. Price, \$2,500. Terms, cash. Address Melvin A. Lewis, Sacket Harbor, N. Y.

No. 494 — Farm of 100 acres; 1½ miles from Sacket Harbor P. O., R. D. No. 1; 50 rods from railway station at Chamberlains Crossing, on line of N. Y. C. & H. R. R.; ½ mile from school; 1½ miles from Presbyterian, Catholic and Methodist churches; ½ mile from butter and cheese factory. Highways, level, good stone road. Nearest large village, Sacket Harbor, population, 800, 1½ miles distant, reached by rail or highway; trains stop at crossing within 50 rods from farm. Soil, clay loam. Acres in meadow, 30; in natural pasture, 40; in timber, ½, maple and elm. Acres tillable, 85. Fruit, 15 apple trees. Best adapted to hay, corn, oats, barley, etc. Fences, barb wire, woven wire and rail, in good condition. House, stone, 12 rooms, in excellent condition. Barns, storage house, 25x15; horse barn, 30x35, for 7 horses; cow barn, for 35 cows; silo, 150 tons, all in good condition. Watered, house, by well; barns, by well; fields, by well and creek. This farm is 1½ miles from Lake Ontario and Mill

Creek runs through the farm. Occupied by tenant. Reason for selling, other business. Price, \$6,500. Terms, one-half cash, balance on mortgage, 5½%. Address R. W. Harris, Sacket Harbor, N. Y.

TOWN OF LORRAINE

Population 940

*No. 495 — Farm of 130 acres; located 3½ miles from Lorraine P. O., R. D. 1; 8½ miles from railway station at Adams, on line of N. Y. C. R. R.; 2 miles from school; 3½ miles from Catholic and Protestant churches and milk station; 3½ miles from butter factory; 2 miles from cheese factory. Highways, good. Altitude, 600 feet. Soil, gravel loam. Acres in meadow, 40; in natural pasture, 50; in timber, 10, mostly maple. Acres tillable, 100. Best adapted to grain and potatoes. Fences, mostly wire, good. House, 25x40. Outbuildings: horse and cow barn; basement stable, 40x90, built 8 years ago; hog pen, 20x30. Watered, house and barn, by well; fields, by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,750. Terms, \$1,500 cash, balance on easy terms. Address Geo. N. Brown, agent, Watertown, N. Y.

*No. 496 — Farm of 300 acres; located 2 miles from Lorraine P. O., R. D. 1; 7 miles from railway station at Adams, on line of N. Y. C. R. R.; 40 rods from school; 2 miles from Protestant churches, butter factory and cheese factory; 7 miles from milk station. Highways, good. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 90; in natural pasture, 150; in timber, 60, mostly beach and maple. Acres tillable, 175. Fruit, apples. Best adapted to hay, corn, potatoes and oats. Large double house. Outbuildings: main barn, 30x80, with ell, 30x40, and 3 other barns. Watered by windmill. Trout creek runs through farm. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$6,000. Terms, one-third down, balance on long time at 5%. Address L. S. Pitkin, agent, Lorraine, N. Y.

TOWN OF LYME

Population 1,955

*No. 497 — Farm of 605 acres; located 3 miles from Three Mile Bay P. O.; 2½ miles from railway station at Three Mile Bay, on line of N. Y. C. R. R.;

* Indicates farm is in hands of agent or real estate dealer.



FIG. 130.—HOUSE ON FARM NO. 549, TOWN OF LENOX, MADISON COUNTY.



FIG. 131.—BUILDINGS ON FARM NO. 564, TOWN OF STOCKBRIDGE, MADISON COUNTY.

1½ miles from school; 3 miles from churches; butter factory and cheese factory; 4 miles from the village of Chaumont, 600 population; a popular summer resort. Three Mile Bay Creek crosses this farm, thus furnishing plenty of good water. Highways, good. Nearest city, Watertown, population, about 26,000, 18 miles distant, reached by rail and highway. Surface of farm, mostly level. Altitude, 250 feet. Soil, clay limestone. Acres in meadow, 400; in natural pasture, 200; acres tillable, 400. Best adapted to oats, corn, hay, barley, potatoes, clover and alfalfa. Fences, wire and rail, good condition. House, 10 rooms, 2 stories, excellent condition. Outbuildings: 2 large barns, with ell, good condition. Watered by well and Three Mile Bay Creek. Farm is 4 miles from Lake Ontario. Reason for selling, to close an estate. Price, \$30 per acre. Terms, \$5,000 or more cash, balance 5%. About 40 head of stock included in above price. Address Edward Z. Anthony, agent, Mannsville, N. Y.

*No. 498—Farm of 1,400 acres; located 3 miles from Chaumont P. O. and railway station, on line of N. Y. C. R. R.; ½ mile from school; 3 miles from churches, butter factory; 1 mile from cheese factory. Highways, good. Nearest city, Watertown, population, about 26,000, reached by rail and highway. Surface, level. Altitude, 260 feet. Soil, clay limestone. Acres in meadow, 600; in natural pasture, 800; in timber, 100, second growth; acres tillable, 900. Small amount of fruit. Best adapted to oats, alfalfa, barley, corn, potatoes, peas, buckwheat and dairying. Fences, wire and rail, good condition. New house, medium size, good condition. Outbuildings, two new first-class stock barns, stables and silos. Watered by well and river. This farm is located 4 miles from Lake Ontario. Occupied by tenant. Reason for selling, to close an estate. Price, \$22.50 per acre. Terms to suit purchaser. Good place for colony. Address Edwin Z. Anthony, agent, Mannsville, N. Y.

No. 499—Farm of 108 acres; located 3½ miles from Chaumont P. O., and railway station, on line of N. Y. C. & H. R. R.; ½ mile from school; 3½

miles from Methodist, Presbyterian and Catholic churches; 3½ miles from cheese factory and milk station. This farm is located on Cherry Island, ½ mile from mainland. Nearest village, Chaumont, population, 708, 3½ miles distant, reached by boat and highway. Surface of farm, nearly level. Altitude, 300 feet. Soil, clay loam. All in meadow and grain. Nice trees along shores only of elm and oak. Acres tillable, 105. Fruit, few cherry trees. Best adapted to hay, alfalfa, oats, corn, wheat, etc. Houses, 2 moderate sized summer cottages. Outbuildings: basement barn, 36x70; hay barn, 30x40; ice house, granary, in good condition. Watered, house, by well; fields, by Chaumont Bay all around the shore. This is an ideal summer home. Occupied by owner. Reason for selling, wishes money to invest in manufacturing interests. Price, \$15,000. Terms, cash, or \$10,000 cash, balance on mortgage. Address The Adams & Duford Co., Chaumont, N. Y.

No. 500—Farm of 250 acres; located 2 miles from Chaumont P. O., and railway station, on line of N. Y. C. & H. R. R.; ½ mile from school, 2 miles from Methodist, Presbyterian and Catholic churches; 2 miles from cheese factory and milk station. Highways, good. Nearest village, Chaumont, population, 708, 2 miles distant, reached by highway. Surface of farm, rolling. Altitude, 300 feet. Soil, clay loam and black muck. Acres in meadow, 30; in natural pasture, 220; timber cut off and ready to clear up for new land. Acres tillable, 125. Best adapted to hay, oats, barley, corn, potatoes, etc. Fences, wire, in good condition. No house. Barn, 30x60, in good condition. Watered, barns, by well, with windmill pump. This farm is ½ mile from Chaumont River. Occupied by tenant. Reason for selling, wishes to invest money in manufacturing business. Price, \$20 per acre. Terms, cash. Address The Adams & Duford Co., Chaumont, N. Y.

No. 501—Farm of 1,400 acres; located 3 miles from Chaumont P. O.; 4 miles from railway station at Chaumont on line of N. Y. C. & H. R. R.; 1½ miles from school; 4 miles from milk station; ½ mile from cheese factory. Highways, good. Nearest village, Chaumont, popu-

* Indicates farm is in hands of agent or real estate dealer.

lation, 708. 4 miles distant, reached by highway. Surface of farm, rolling. Altitude, 300 feet. Soil, clay loam and black muck. Acres in meadow, 125; in natural pasture, 800; in timber, 100, cedar and hardwood. Acres tillable, 600. Best adapted to hay, corn, oats, wheat, barley, potatoes, alfalfa, etc. Fences, wire, in good condition. Houses: one new farm house, one old farm house, in good condition. Outbuildings: 2 large dairy barns, with basement stables, well lighted, stable room for 80 head cattle; 2 new silos, 16x32; other ample hay barns and outbuildings. Watered, house and barns, by wells; fields, by springs and creeks. This farm borders on Chaumont River. Reason for selling, wishes to invest capital in manufacturing business. Price, \$22.50 per acre. Terms, cash. Address The Adams & Duford Co., Chaumont, N. Y.

TOWN OF THERESA

Population 2,036

*No. 502 — Farm of 100 acres; located $1\frac{1}{2}$ miles from Theresa P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school; 2 miles from churches; 1 mile from butter factory, cheese factory and milk station. Highways, good. Altitude, about 400 feet. Soil, sandy loam. Acres in meadow, 60; in natural pasture, 40. Acres tillable, 100. Adapted to truck gardening, corn, etc. Fences, good. House in fair condition. Outbuildings: 1 barn, 30x40; granary, 18x22; hen house and hog pen; good condition. Watered, house, by well; barns, by well and spring; fields, by spring. Occupied by owner. Reason for selling, owner in other business. Price, \$2,500. Terms, one-half cash, balance on time. Address D. L. Coe, agent, Theresa, N. Y.

TOWN OF WATERTOWN

Population 1,097

*No. 503 — Farm of 115 acres; located $3\frac{1}{2}$ miles from Watertown P. O., R. D., and railway station, on line of N. Y. C.

& H. R. R. R.; 1 mile from school; $3\frac{1}{2}$ miles from Baptist, Presbyterian, Episcopal, Methodist and Catholic churches; $3\frac{1}{2}$ miles from butter and cheese factory; $3\frac{1}{2}$ miles from milk station. Highways, macadam road. Nearest city, Watertown, population, 26,730, $3\frac{1}{2}$ miles distant, reached by highway. Surface of farm, rolling. Soil, sandy loam and muck. Acres in meadow, 40; in natural pasture, 25; in timber, 10, maple, hemlock, cherry and beech. Acres tillable, 50. Fruit, 50 apple trees. Best adapted to corn, oats, potatoes, etc. Fences, wire. House, 2 story, 25x50, in good condition. Barn, 40x80, in fair condition; hen house, 12x40. Watered, house, by well; barns, by well; fields, by springs. This farm is 12 miles from Lake Ontario. Occupied by owner. Reason for selling, ill health of owner. Price, \$50 per acre. Terms, \$2,750 cash, balance on mortgage at 5%. Address George N. Brown, agent, Watertown, N. Y.

TOWN OF WORTH

Population 597

No. 504 — Farm of 100 acres, 8 miles from Adams P. O., R. D. 1; 100 rods from church. Highways, in excellent condition. Soil, gravel and clay loam. Acres, meadow, 55; pasture, 40; timber, 5. House, 16x24. Barns, recently burned. Sufficient timber on place to furnish material for new barn. Watered by 2 creeks and spring. Fences, wall and rails, well fenced all around and cross fences. This is a fine farm and will be sold very cheap on account of loss of barns. Price, \$1,800. Terms, \$1,000 down and the balance to suit the purchaser. Has 51 acres more for sale, located $1\frac{1}{4}$ miles from above described farm. Will sell all together or separate. Land well watered by spring and running brook. Good barn, 28x38. No house. Will take \$20 per acre. Terms, one-half down. Will also sell store with farm, if desired. Name and address of owner, Daniel Groves, Adams, N. Y.

LEWIS COUNTY

Area, 1,288 square miles. Population, 24,849. Annual precipitation, 36.79 inches. Annual mean temperature, 45.1°. Number of farms, 3,343. County seat, Lowville.

This county is situated north of the Mohawk Valley in the north central part of the state. It is drained by the Black, Beaver, Moose and Oswegatchie Rivers. The surface is hilly and broken except along the Black River which flows through the center of the county from south to north. Along this wide valley the soil is

* Indicates farm is in hands of agent or real estate dealer.

of a rich limestone formation and the surface is gently rolling with some level tracts. To the east of these the land rises in abrupt broken hills to an elevation in some places of 1,200 feet above the valley. The hills are covered with forests of sugar maple, pine, spruce, birch, hemlock and other trees, and are too rough for cultivation. In the western portion of the county the hills are mostly long sloping ridges with fertile clay loam soils. Trenton limestone is found in parts of the county. Agriculture is the chief industry. The principal products are corn, 37,522 bushels; oats, 668,966 bushels; barley, 41,283 bushels; potatoes, 627,771 bushels; hay and forage, 156,063 tons. Farm property reaches a total valuation of \$16,288,674; an increase of 24.7 per cent. in the past ten years. The average price of improved land per acre is \$28.16. Farms report the following domestic animals: Dairy cows, 36,291; horses, 8,037; swine, 12,256; sheep, 5,225; poultry, 98,569. Milk produced, 18,435,828 gallons. Total receipts from the sale of dairy products is \$1,611,947. The county is thoroughly well equipped with transportation facilities. There are 208 district schools; 106 stations and factories where milk finds a ready market; an agricultural society which holds an annual fair; twenty-one granges and one Pomona grange. The production of cheese of all kinds is very large.

TOWN OF DENMARK.

Population 1,889

*No. 505 — Farm of 194 acres; located 2½ miles from Copenhagen P. O. and railway station, on line of C. & C. R. R.; ½ mile from school; 2½ miles from cheese factory; 75 rods from milk station; 2½ miles from condensing plant. Highways, good. Nearest village, Copenhagen, population, 1,000, 2½ miles distant, reached by rail and highway. Surface, rolling. Soil, clay loam. Acres in meadow, 160; in timber, 30, mostly maple and beech, some cedar; acres tillable, 160. Best adapted to hay, corn, small grains, etc. House, 9-room, in good condition, good cellar. Barns, in very good condition. Watered, house, by well; barns, by running water. Price, \$11,000; includes dairy. Address J. H. McLear, agent, Gouverneur, N. Y.

*No. 506 — Farm of 250 acres; located at limits of Copenhagen village, ½ mile from railway station, on line of C. & C. R. R.; ½ mile from school and churches; ¾ mile from cheese factory and milk station, reached by highway. Surface, rolling. Soil, clay loam. Acres in meadow, 160; in natural pasture, 90; in timber, 30, maple, elm and hemlock; acres tillable, 220. Best adapted to timothy, clover, corn, small grain, etc. Fences, in good condition. Good house. Barns, in good repair. Watered, by well; fields, by springs. Deer River borders farm. Occupied by owner. Reason for selling, old age of owner. Price includes dairy. Price, \$10,500. Address J. H. McLear, agent, Gouverneur, N. Y.

*No. 507 — Farm of 95 acres; located 1½ miles from Copenhagen P. O. and railway station, on line of C. & C. R. R.; 1½ miles from school, churches and cheese factory. Highways, good. Nearest village, Copenhagen, population, 1,000, 1½ miles distant, reached by rail and highway. Surface, rolling. Soil, clay loam. Acres in meadow, 75; in natural pasture, 20; in timber, 6, mostly second growth maple; acres tillable, 75. Best adapted to hay, corn, small grains, etc. Fences, in good condition. House, 5 rooms, in good condition, good cellar. Cow barn, 40x60. Watered by wells. Occupied by owner. Reason for selling, old age of owner. Purchasing price includes dairy. Price, \$4,000. Would trade for house and few acres of land near good village. Address J. H. McLear, agent, Gouverneur, N. Y.

*No. 508 — Farm of 277 acres; located 2 miles from Copenhagen P. O.; 2 miles from railway station at Copenhagen, on line of C. & C. R. R.; 1 mile from school; 2 miles from churches and butter factory. Highways, good. Nearest village, Copenhagen, population, 1,000, 2 miles distant, reached by rail or highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 125; in natural pasture, 50; in timber, 25, hard and soft; acres tillable, 250. Fruit, a few apple trees. Best adapted to timothy, clover, oats and corn. Fences, good. House, in fair condition. Barn, large, in poor condition. Watered, house and barns, by well; fields, by springs and river. Deer River bounds farm. Reason for selling, owner cannot give farm proper attention. Price, \$6,500.

* Indicates farm is in hands of agent or real estate dealer.

Terms, \$1,500 cash, balance on mortgage at 5%. Will leave 30 cows, all hay, straw and fodder. Address J. H. McLearn, agent, Gouverneur, N. Y.

*No. 509 — Farm of 276 acres; located 1¼ miles from Copenhagen P. O.; 1¼ miles from railway station at Copenhagen, on line of C. & C. R. R.; 1¼ miles from butter factory, cheese factory and milk station. Highways, good. Nearest village, Copenhagen, population, 1,000, 1¼ miles distant, reached by highway. Surface of farm, rolling. Soil, loam. All tillable. Best adapted to timothy, clover, oats and grain. Fences, good. House, good size, in first-class condition. Large barn, in excellent condition. Watered, house and barns, by well; fields, by springs. Near Deer River. Farm will keep 50 cows. Occupied by owner. Will leave 30 cows, hay, straw, fodder and part of grain. Reason for selling, owner wishes to retire. Price, \$15,500. Terms, \$5,000 cash, balance at 5%. Address J. H. McLearn, agent, Gouverneur, N. Y.

No. 510 — Farm of 163 acres; 2 miles from Copenhagen P. O., R. D., and railway station on line of C. & C. R. R.; ¾ mile from school; 2 miles from churches of all denominations, butter and cheese factory and condensing plant. Highways, State road. Nearest city, Watertown, population, 28,000, 12 miles distant, reached by rail or highway. Surface of farm, part level and part slightly rolling. Altitude, 1,200 feet. Soil, clay loam. Acres in meadow, 105; in natural pasture, 60; in timber, 25, mostly maple and beech. Acres tillable, 125. Fruit, 60 apple trees, plums and cherries. Best adapted to hay, corn, oats, potatoes, etc. Fences, wire, in fair condition. House, 14 rooms, in fine condition. Barn, 42x90, with ell, 30x42; pig pen, 16x24; tool house, 18x30. Watered, house, by well and cistern; barns, by spring; fields, by springs and brook. This farm is 2 miles from Deer River and Pleasant Lake. There is a sugar bush of 1,000 trees on this farm, also all implements necessary in making maple sugar. Reason for selling, dissolving partnership. Price, \$8,000. Terms, \$3,000 cash, balance on mortgage at 5%. This price includes all stock, farming implements, hay and grain on hand. Address Rogers & Keller, Copenhagen, R. D. 3, N. Y.

TOWN OF DIANA

Population 2,279

*No. 511 — Farm of 120 acres, located ½ mile from Sterlingbush P. O. and railway station, on line of N. Y. C. R. R.; ½ mile from school; 2½ miles from churches; ¾ mile from milk station and cheese factory. Highways, good. Nearest village, Carthage, population 6,000, 15 miles distant, reached by highway. Surface, level. Soil, light, mucky loam. Acres in meadow, 75; in natural pasture, 45; in timber, 8; acres tillable, 90. Best adapted to corn, hay, grain, etc. Good fences; 8-room house, with woodshed, in good condition. Watered, house and barns by well. Barns in good condition. Indian River borders back end of farm. Occupied by owner. Reason for selling, old age of owner. Price includes dairy. Price, \$3,000. Terms, \$700 down, or house taken in part payment. Address J. H. McLearn, agent, Gouverneur, N. Y.

TOWN OF GREIG

Population 807

*No. 512 — Farm of 50 acres; 100 feet from Greig P. O.; 4 miles from railway station at Glenfield, on line of N. Y. C. & H. R. R. R.; 200 feet from school; 300 feet from Methodist church; 1 mile from butter and cheese factory; 4 miles from milk station and condensing plant. Highways, good. Located in village of Greig, population 300. Surface of farm, level. Altitude, 800 feet. Soil, sandy loam. Acres in meadow, 25; in pasture, 25. Acres tillable, 40. Fruit, apples and plums. Adapted to all kinds of crops. Fences in good condition. House, 8 rooms, in fine condition. Barn, 40x60. Watered, house, barns and fields by running water. This farm is 1 mile from Black River and 4 miles from Brantingham Lake. Occupied by owner. Possession can be given in 30 days' time. Reason for selling, widow cannot conduct farm. Price, \$3,000. Terms, ½ cash, balance on mortgage at 5%. Ten acres of this farm is flats which grow large crops of hay and is worth \$100 per acre. Address Henry F. Weber, agent, Weber Block, Lowville, N. Y.

No. 513 — Farm of 137 acres; 2 miles from P. O., R. D. 1, and railway station at Glenfield on line of N. Y. C. & H. R. R.; ¼ mile from school; 1 mile from Methodist and Presbyterian

* Indicates farm is in hands of agent or real estate dealer.

churches; 2 miles from milk station and condensing plant. Highways, good. Nearest large village, Lowville, 10 miles distant, reached by rail and highway. Surface of farm, part level and part hilly. Soil, sandy loam. Acres in meadow, 50; in timber, 87, beech, maple, white ash, etc. Acres tillable, 50. Best adapted to corn, potatoes and oats. Fences, good. House, small, in good condition. Barn, large, in good condition. Watered: house by well, barns by creek, fields by creek. This farm is not far from Black River and Adirondack Mountains. Occupied by owner. Reason for selling, widow cannot attend to farm. Price, \$3,000. Terms, cash. Address Gertrude Holmes, Glenfield, R. D. 1, N. Y.

TOWN OF HARRISBURG

Population 686

* No. 514—Farm of 112 acres; located 7 miles from Lowville P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; 1 mile from school and churches; 2 miles from butter factory and cheese factory; 7 miles from milk station and milk condensing plant. Highways, part State road. Surface of farm, rolling. Altitude, about 1,000 feet. Soil, clay loam. Acres in meadow, 42; in natural pasture, 50; in timber, 20, spruce, hemlock, basswood, maple, birch and beech. Acres tillable, 90. Fruit, apples. Adapted to grain, hay, corn, potatoes, etc. Fences in good condition. House, 6 rooms, good condition. Outbuildings: good barn, 30x40, with basement. Watered, house and barn by running water, fields by creek. Occupied by owner. Reason for selling, death of owner's wife. Price, \$3,500. Terms, \$500 cash, balance on bond and mortgage at 5%. Address Henry F. Weber, agent, Weber Block, Lowville, N. Y.

TOWN OF LOWVILLE

Population 3,875

* No. 515—Farm of 112 acres; located 1½ miles from Lowville P. O.; 1½ miles from railway station at Lowville, on line of N. Y. C. & H. R. R. R.; 1½ miles from Lowville Academy and other schools; 1½ miles from churches of all denominations, butter factory, cheese factory, milk station and condensing plant. Highways, good. Nearest village, Lowville, population 4,000, 1½ miles distant, reached by highway. Surface of

farm, slightly rolling, mostly level. Altitude, 800 feet. Soil, loam on top of lime rock. Acres in meadow, 40; in natural pasture, 50; acres tillable, 100. Adapted to general farming. Fences, good. House, 6 rooms, in good condition. Barn, large, in good condition. Watered, house by well, barns by running water, fields by running water. 2 miles from Black River. 20 first-class cows, some calves, hay and grain go with farm at price given. Reason for selling, owner is a widow and a non-resident. Price, \$6,000. Terms, ½ cash, balance at 5%. Address Henry F. Weber, agent, Weber Block, Lowville, N. Y.

TOWN OF MARTINSBURG

Population 1,546

* No. 516—Farm of 185 acres; 6 miles from Lowville P. O., R. D. 5, and railway station on line of N. Y. C. & H. R. R. R.; ¾ mile from school; ¾ to 2 miles from Methodist and Presbyterian churches; ¾ mile from butter and cheese factory; 2 miles from milk station and condensing plant. Highways, new State road. Surface of farm, level and some rolling. Altitude, 1,000 feet. Soil, loam. Acres in meadow, 60; in natural pasture, 100; in timber, 20, pine, spruce, hemlock, beech and maple. Acres tillable, 160. Fruit, good apple orchard. Best adapted to all kinds of crops. Fences, good. House, 8 rooms, in good condition. Barn, 40x120, in good condition. Watered: house by well, fields by springs. This farm is 2 miles from Black River. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$6,000. Terms, ½ cash, balance on mortgage at 5%. Address Henry F. Weber, agent, Weber Block, Lowville, N. Y.

* No. 517—Farm of 107 acres; 5 miles from Lowville P. O. and railway station, on line of N. Y. C. & H. R. R. R.; ½ mile from school; 1 mile from church and butter and cheese factory; 5 miles from milk station and condensing plant. Highways, good. Nearest village, West Martinsburg, population 200, 4 miles distant, reached by highway. Surface of farm, level and rolling. Altitude, 1,100 feet. Soil, loam. Acres in meadow, 40; in natural pasture, 50; in timber, 12, mostly hardwood, 200 sugar maples. Best adapted to all kinds of crops. Fences in good condition. House, 9

* Indicates farm is in hands of agent or real estate dealer.

rooms, in good condition. Barn, 82x40, in good condition. Watered: house by well, barns by well, fields by spring and creek. This farm is 6 miles from Black River. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$4,000. Terms, \$1,500 cash, balance on mortgage at 5%. Address Henry F. Weber, agent, Weber Block, Lowville, N. Y.

TOWN OF NEW BREMEN
Population 1,609

No. 518 — Tract of land of 67 acres; located 1 mile from Beaver Falls P. O. and railway station, on line of L. B. R. R.; 1 mile from school, church and milk station. Highways, good. Nearest large village, Lowville, County seat, population 2,940, 8 miles distant, reached by highway. This land is partly wooded and has never been tilled. Surface of farm, level. Soil, sandy loam. Best adapted to potatoes, grain, fruit, pasture, etc. Price, \$500. Terms to suit purchaser. There is no building on this tract. Is suitable place for bungalow; very fine view. Address Clara S. Itterly, Shawnee, Ohio.

TOWN OF OSCEOLA
Population 456

No. 519 — Farm of 182 acres; located 1 mile from Osceola P. O.; 12 miles from railway station at Camden, on line of A. W. & O. Ry.; 1 mile from school, churches and cheese factory. Highways somewhat hilly but good. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 80; in timber, 50, mostly second growth hardwood. All tillable except woodland. Fruit, about 70 apple trees. Best adapted to corn, oats, barley and grasses. Fences, board and wire, fair condition. House, 1½ stories, 18x24; wing, 18x30, and shed, 10x38, fair condition. Outbuildings, 1 barn, 40x80, ½ basement; barn, 36x40, with cellar; stone smoke and ash house. Watered by springs and brook. Occupied by owner. Reason for selling, owner has other business. Price, \$2,500. Terms, ½ cash, balance on easy terms. Daily mail and stage. Address O. G. Cowles, Osceola, N. Y.

TOWN OF PINCKNEY
Population 806

* No. 520 — Farm of 82 acres; located 2 miles from Barnes Corners P. O.; 7½ miles from railway station at Copenhagen, on line of C. & C. R. R.; 1 mile from school; 2 miles from Catholic and Protestant churches; 1½ miles from butter factory and cheese factory. Highways, good. Nearest village, Copenhagen, population 1,000, 7½ miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,500 feet. Soil, clay loam. Acres in meadow, 50; in timber, 20, maple and beech; all tillable except woodland. Fruit, a few apple trees. Best adapted to corn, oats, wheat, fruit, timothy, clover. House, 8 rooms, in good condition. Barns, in good condition. Watered, house by well and good spring in cellar, barns by 2 wells, fields by several springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,500. Address J. H. McLearn, agent, Gouverneur, N. Y.

TOWN OF WATSON
Population 757

No. 521 — Farm of 147 acres; 1 mile from Bushes Landing P. O.; 4 miles from Martinsburg railroad station, on line of N. Y. C., Black River branch; R. D. 1, from Glenfield; ½ mile from cheese factory. Highways, good. Soil, clay loam, good quality. Acres in meadow, about 40; acres natural pasture, 50; acres timber, 60, maple, birch, cedar, ash, hemlock and poplar. About 50 different varieties of fruit trees. Best adapted to dairying. Fences, rail and wire, in good condition. 2-story house, 12 rooms, in good condition. 2 barns; one, 30x50; one, 26x62, with stone basement, in good condition. Watered by well, spring and creek. Good hunting and fishing. Deer hunting within 7 miles. This farm is 4 miles from Chase Lake and 5½ miles from Lowville. About 5 minutes' walk to school; ½ mile from Black River. The timber will pay for farm. Fine trout stream running through farm. There is a blacksmith shop and milk house on farm. Price, \$3,700, including all farming tools. Terms, ½ cash. Name and address of owner, J. L. Gazin, Glenfield, N. Y., R. D. 1.

* Indicates farm is in hands of agent or real estate dealer.

LIVINGSTON COUNTY

Area, 644 square miles. Population, 38,037. Annual precipitation, 36.48 inches. Annual mean temperature, 50°. Number of farms, 3,298. County seat, Geneseo.

This county is situated in the western part of the state and is intersected by the Genesee River, and is also drained by the Canaseraga and Honeoye Creeks. The surface features show the eastern part of the county to be quite rough and the southern part generally hilly. The fertile Genesee Valley extends the entire length of the county from the north to south. It is extensively covered with forests. Two large lakes lie in the eastern part of the county. The soil in the southern part is generally sandy loam, while near the center clay is predominant. Numerous salt wells are found in the northern part of the county and have been developed into a great industry. The county leads every other county of the state in the production of rock salt. The total valuation of all farm property is \$28,698,858, an increase of 32 per cent. over the valuation of 1900. The average price of farm land per acre is \$39.40, a gain of about \$5 per acre during the past decade. The domestic animals reported on the farms: Dairy cows, 17,859; horses, 13,598; swine, 13,231; sheep, 59,794; poultry, 166,149; milk product, 9,161,667 gallons, and the receipts from all dairy products, \$787,866. There are fifteen milk stations and factories in the county. Some of the leading crops grown are corn, 346,213 bushels; oats, 960,346 bushels; wheat, 520,775 bushels; barley, 58,656 bushels; rye, 69,797 bushels; dry beans, 255,244 bushels; potatoes, 1,438,699 bushels; hay and forage, 120,272 tons. The county is intersected by the Delaware, Lackawanna & Western, Erie and Pennsylvania railroads and Genesee Valley Canal. These lines furnish excellent accommodations to the farmers in the marketing of their products. Buffalo, Rochester, Elmira and other centers of population furnish unlimited markets for all farm products. Mineral springs of great value and popularity are located at Avon, a state normal school at Geneseo, and planing mills, salt works, flour and saw mills are located throughout the county. There are 174 district schools, 12 granges, 1 Pomona grange and a Union Agricultural Society, all devoted to the best interests of the farmers of the county. Vineyards and orchards are being developed with great success.

TOWN OF WEST SPARTA

Population 772

No. 522 — Farm of 206¾ acres; located 5 miles from Dansville P. O., R. D. 4, and railway station, on line of D. M. & D. L. & W. Rys; ½ mile from school; 1½ miles from Free Methodist church; 1 mile from cheese factory. Surface of farm, mostly level. Soil, sandy loam and stony. Nearly all in meadow except timber land. Acres in timber, 60, oak, chestnut, etc. Fruit for family use. Best adapted to beans, hay, etc. Fences,

wire and rail, good condition. House, 11 rooms, nearly new; bath room, acetylene gas lights. Outbuildings, nearly new barn with basement and sheds attached, all gambrel roofs with running water in basement and sheds; horse barn with carriage room and tool room. Watered, house by well and cistern, barns by running water, fields by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$65 per acre. Terms, part cash, remainder on time. Address Mrs. F. W. Miller, Dansville, N. Y., R. D. No. 4.

MADISON COUNTY

Area, 628 square miles. Population, 39,289. Annual precipitation, 48.5 inches. Annual mean temperature, 45.6°. Number of farms, 4,042. County seat, Wampsville.

This county is located in the central part of the state, touched on the north by Oneida Lake, and Oneida Creek forms its northeast boundary. It is drained by Chenango and Unadilla Rivers and Chittenango, Canastota and Oriskany Creeks. This county is one of the leading counties for grazing and stock raising. It is fertile and productive and easily accessible to the best markets. The farms offer excellent opportunities and give good returns for intelligent effort. In the southern part the surface is mostly hilly, traversed by broad valleys, while in the northern part gentle undulations and stretches of level land prevail. The county is well wooded and has an abundance of pure water. The rocks which underlie are sandstone and shale. The county has quarries of gypsum, water lime, iron ore and excellent building stone. In the western part gravelly loam is prevalent, while in

the southern section volusia silt loam predominates. The soil in the northern portion is usually rich, black and gravelly loam whereon are produced enormous crops of celery, onions, etc. The leading crops are corn, 212,790 bushels; oats, 712,637 bushels; barley, 66,006 bushels; buckwheat, 111,431 bushels; potatoes, 619,283 bushels; hops, 1,384,508 pounds; hay and forage, 238,578 tons. Alfalfa grows abundantly in the county. The average price of farm land per acre is \$41.45. Domestic animals are reported as follows: Dairy cows, 36,994; horses, 11,282; swine, 7,750; sheep, 7,602; poultry, 211,716. There were produced 22,381,370 gallons of milk, and the total receipts from the sale of dairy products were \$2,247,721. Live stock represents 21 per cent. of the entire value of farm property in the county, making it rank third in this industry. The county is intersected by the New York Central and Hudson River; New York, Ontario & Western; West Shore; Delaware, Lackawanna & Western, and the Cortland & Northern railroads; the Erie Canal also passes through the northern portion. There are 199 school districts with high schools and academies in some of the larger villages. Colgate University is located at Hamilton and is one of the well-known universities of the east. At Morrisville is located one of the new agricultural schools which are contributing so much to the agricultural power and prosperity of the state. Flour mills, breweries, knitting mills, carriage factories and canning factories are located in this county. There are seventeen agricultural organizations, thirty-five miles of state and county roads, 1,273 miles of improved highways. The principal exports of the county are hops, dairy products and pure-bred cattle. The soil and climate is especially adapted for the production of apples of the highest quality and other fruits can be grown with excellent results.

TOWN OF BROOKFIELD

Population 2,403

* No. 523 — Farm of 335 acres; located $\frac{1}{2}$ mile from Bridgewater P. O. and railway station, on line of D., L. & W. and U. V. R. R.; $\frac{1}{2}$ mile from school; 1 mile from churches. Highways, level and good. Nearest village, Bridgewater, population about 300. Surface, level, except pasture. Soil, mostly river bottom. Acres in meadow, 100; natural pasture, 80; timber, 15, all kinds; acres tillable, 200. Fruit, apples and pears. Best adapted to hay, grain, etc. Fences, board and wire, good. 3 good houses, 1 larger than the others. Outbuildings: barn, 135x40, for fancy horses; horse barn with enclosed sheds for work horses; cow barn and two silos, 110x40; other outbuildings. Watered by springs, streams and Unadilla River, which runs through farm. Occupied by tenant. Reason for selling, to close an estate. Race course on farm, which is within easy distance of Utica by State road or railroad. Price, \$22,000. Terms, reasonable. Address Clinton Noble, attorney, West Winfield, N. Y.

No. 524 — Farm of 112 acres; situated 1 mile from North Brookfield P. O. and railway station, on D., L. & W. R. R.; R. D. Soil, very productive and in a high state of cultivation. Acres tillable,

90; acres timber, 20. 500 sugar maple trees; 30 bearing apple trees. House, 10 rooms, 2 stories, in good repair. Modern barns with basement and cement floors. Watered by running springs and brook; concrete reservoir which holds 100 barrels is piped to house and barn. Well fenced. There are 3 acres of alfalfa 1 year old and 1 acre 2 years old from which owner had 3 crops this season. Schools, churches, stores, milk station at North Brookfield, 1 mile distant. Price, \$5,000. Terms, easy. Address W. T. Squires, North Brookfield, N. Y.

No. 525 — Farm of 125 acres; situated $\frac{1}{4}$ mile from North Brookfield, on D., L. & W. R. R.; R. D. from North Brookfield. 90 acres tillable; 30 acres timber. Soil, very productive. Adapted to hops, stock raising, hay and grain. Good fences. Spring and brook water. Barn, 34x50, in good condition. No house. Large pond of pure spring water on farm from which \$400 to \$500 worth of ice is sold each year. Taxes in Town of Brookfield very low. Price, \$5,000. Terms, easy. Address W. T. Squires, North Brookfield, N. Y.

No. 526 — Farm of 96 acres; located $2\frac{1}{2}$ miles from Leonardsville P. O.; $2\frac{1}{2}$ miles from railway station at Leonardsville, on line of Unadilla Valley R. R.;

* Indicates farm is in hands of agent or real estate dealer.

$\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from Baptist and Methodist churches; $2\frac{1}{2}$ miles from milk station; 14 miles from condensing plant. Highways, $\frac{1}{2}$ good, $\frac{1}{2}$ hilly. Nearest city, Utica, population 75,000, 25 miles distant, reached by rail or highway. Surface of farm, hilly, but good to work. Soil, part loam, part clay and gravel. Acres in meadow, 50; in natural pasture, 46; acres tillable, 75. Fruit, a few apple trees in bearing, 10 or 12 young trees. Best adapted to hay, oats, corn, potatoes, turnips and fruit. Fences, stone wall and wire, cedar posts, in good condition. House, upright, 20x24; wing, 16x18; back wing, 18x24. Barn, 24x54, with 12x54 leanto on south also leanto 24x30 with basement; grain silo, 14x24; milk house and ice house. Watered, house, by well; barns, by spring; fields, by brook and pond. $1\frac{1}{2}$ miles from Unadilla river. Sufficient timber on ground to build an addition to barn, 24x28, and hay in stock to fill it. Occupied by tenant. Reason for selling, owner is unable to work farm. Price, \$3,000. Terms, $\frac{1}{2}$ cash, balance on bond and mortgage. Address Eli S. Brand, Leonardsville, N. Y.

No. 526 $\frac{1}{2}$ — Farm of 120 acres; located 2 miles from Brookfield P. O.; 3 miles from railway station at Brookfield, on line of D., L. & W. R. R.; 25 rods from school; 2 miles from churches; 2 miles from milk station; 3 miles from condensing plant. Highways, some hills, but good. Nearest village, Brookfield, population 450, 2 miles distant, reached by highway. Acres in meadow, 60; in natural pasture, 50; in timber, 10, hard wood and hemlock; acres tillable, 100. Plenty of fruit. Best adapted to hay, corn, oats, barley and hops. Fences, wire. House, $1\frac{1}{2}$ stories, 8 rooms, in good condition. Basement barn, 54x36; hop house, 20x40; hog pen, 18x12; hen house, 12x12. Watered, house by well; barns and fields, by running water. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500. Terms, easy. Address D. E. Gray, Brookfield, Madison County, N. Y.

No. 527 — Farm of 100 acres; located $2\frac{1}{2}$ miles from Brookfield P. O.; 3 miles from railway station at Brookfield, on line of D., L. & W. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches of various denominations; $2\frac{1}{2}$ miles from cheese factory; 3 miles from milk station; 16 miles from condensing plant.

Highways, good. Nearest city, Utica, population, 75,000. Acres in meadow, 40; in natural pasture, 35; in timber, 25, hard wood and hemlock; acres tillable, 75. Fruit, apples and pears, good orchard. Adapted to all crops grown in this climate. Fences, mostly wire. House, good farm house, 8 rooms. Basement barn, 22x50; hop house, 20x40; hog pen. Watered, house, by well; fields, by plenty of running water; 2 miles from small lake. One of the best hop farms in this locality. Occupied by tenant. Reason for selling, advanced age of owner. This farm is $\frac{1}{4}$ mile from stage and telephone line. Price, \$2,500. Terms, easy. Address D. E. Gray, Brookfield, Madison Co., N. Y.

No. 528 — Farm of 118 acres; located $2\frac{1}{2}$ miles from North Brookfield P. O. and railway station, on line of D., L. & W. R. R., 1 mile from school and Protestant churches, $2\frac{1}{2}$ miles from milk condensing plant. Highways, somewhat hilly but in good condition. Surface of farm, rolling. Altitude, about 1,400 feet. Soil, clay and loam. Acres in meadow, 58; in natural pasture, 20; in timber, 40, hemlock, birch, beech and basswood. Acres tillable, 58. Fruit, cherries, apples and pears. Best adapted to corn, oats and potatoes. Fences, wire and board, fair condition. House, 12 rooms, good condition. Outbuildings: horse barn, wood and wagon houses, good condition; cow barn, poor condition. Watered by well, brooks and spring. Occupied by tenant. Price, \$3,100. Terms, two-thirds cash. Address Mrs. H. E. Beney or Miss V. M. Larkin, Earlville, N. Y.

No. 529 — Farm of 130 acres; located $3\frac{1}{2}$ miles from North Brookfield P. O., $3\frac{1}{2}$ miles from railway station at Hubbardsville, on line of D., L. & W. R. R., $1\frac{1}{2}$ miles from school, churches and cheese factory, 3 miles from milk station. Highways, good. Surface of farm, rolling. Altitude, 1,500 feet. Soil, clay and loam. Acres in meadow, 50; in natural pasture, 60; in timber, 20, mostly maple. Acres tillable, 80. A few fruit trees. Best adapted to corn, oats and potatoes. Fences, in fair condition. House, 5 rooms, fair condition. Outbuildings: large barn, horse barn with leanto, fair condition. Watered by spring. Occupied by tenant. Reason for selling, owner living in town, cannot attend to farm. Price, \$2,000. Terms,

cash preferred, would take two-thirds down. Address Mrs. H. E. Beney or Miss V. M. Larkin, Earlville, N. Y.

TOWN OF CAZENOVIA

Population 3,687

No. 530 — Farm of 160 acres; located 2 miles from railway station at New Woodstock, on line of Lehigh Valley R. R., R. D. route; $\frac{1}{4}$ mile from school; 2 miles from Protestant churches, butter factory, cheese factory and milk station; 7 miles from milk condensing plant. Highways, good. Nearest large village, Cazenovia, 8 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,200 feet. Soil, gravel and slate. Acres in meadow, 60; in natural pasture, 60; in timber, 40, beech and maple. Acres tillable, 90. Fruit, apples, pears and plums. Best adapted to grass, potatoes, cabbage, corn and oats. Fences, wire, fair condition. House, 12 rooms, good condition. Outbuildings in fair condition. Watered by well, springs and brooks. Occupied by owner. Reason for selling, advanced age of owner. For price and terms, address Wm. Durfee, New Woodstock, N. Y.

No. 531 — Farm of 23 acres; located $2\frac{1}{2}$ miles from New Woodstock P. O., R. D. 3, from Cazenovia, 2 miles from railway station at Balling, on line of Chenango branch of W. S. R. R., $\frac{1}{2}$ mile from school, $2\frac{1}{2}$ miles from churches, butter factory, cheese factory and milk station. Highway, good. Nearest large village, Cazenovia, 4 miles distant, reached by highway. Surface of farm, rolling, level and hilly. Soil, gravel loam. Acres in meadow, 14; in natural pasture, 8; in timber, 1, basswood, maple, young. Acres tillable, 14. Fruit, apples, plums, currants and berries. Best adapted to hay, grain, potatoes, cabbage and celery. Fences, mostly wire, good condition. House, 35×16 , $1\frac{1}{2}$ stories, good condition. Outbuildings: barn, nearly new, 26×36 ; silo, granary, hen house. Watered by cistern, spring and stream. Reason for selling, owner living in town. Price, \$2,000, including tools. Terms, one-half cash, balance on mortgage. Address L. Henry Judd, New Woodstock, N. Y.

No. 532 — Farm of 180 acres; located $1\frac{1}{2}$ miles from New Woodstock P. O., R. D. 1, and railway station, on line

of E. C. & N., a branch of Lehigh Valley R. R., $1\frac{1}{2}$ miles from High School, Protestant churches, cheese factory and milk station, 3 miles from milk condensing plant. Highways, part hilly and part level. Nearest large village, Cazenovia, 6 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,300 feet. Soil, loam, some stone. Acres in meadow, 100; in natural pasture, 60; in timber, 20, largely second growth hemlock. Acres tillable, 125. Fruit, apples. Best adapted to oats, barley, corn, potatoes, cabbage and hay. Fences, mostly wire, nearly all in good condition. House, 31×24 , with wing, 14×18 , 2 stories, large enough for two families, good condition. Outbuildings: basement cow barn, 120×30 ; horse barn, wagon shed, silo, granary, grain or hay barn, hen house, 16×60 , built two years. Watered, house, by cistern; barns, by running water and well; fields, by springs and creek. Occupied by tenant. Reason for selling, owner wants to give up farming. Price, \$65 per acre. Terms, one-half cash. Address E. L. Buell, Cazenovia, N. Y.

TOWN OF DERUTTER

Population 1,196

*No. 533 — Farm of 260 acres; 2 miles from Sheds P. O. and railway station, on line of Lehigh Valley R. R.; $\frac{1}{2}$ mile from school; 2 miles from Methodist church and $2\frac{1}{2}$ miles from milk station. Highways, fair. Nearest village, Georgetown, 4 miles distant, reached by highway. Surface of farm, rolling. Soil, gravel loam. 2 acres alfalfa, 75 acres timber and 300-tree sugar bush. Acres tillable, 140. Fruit, 100 apples and some small fruit. Best adapted to dairying and general farming. Fences, good. House, 12 rooms, in good condition. 3 barns, shop, wagon shed, hen house, granary and silo. Watered, house, by well; barns, by running water. Occupied by owner. Reason for selling, wants smaller farm. Price, \$6,500. Terms, \$3,000 cash, balance on mortgage. This price includes cattle, horses and farming implements on the farm. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF EATON

Population 2,417

No. 534 — Farm of 200 acres; $2\frac{1}{2}$ miles from Eaton P. O.; 3 miles from

* Indicates farm is in hands of agent or real estate dealer.

Eaton station, on line of N. Y., O. & W. R. R.; R. D. Highways, in fair condition. Adapted to corn, potatoes, dairying and grain. Acres in meadow, 75; tillable, 150; 25 acres in timber; 250 sugar maples; 3 acres of bearing apples. Watered by well, springs and brooks. 1½-story house. Large barn, silo and other outbuildings. This farm borders on Bradley Brook reservoir and is ½ mile from Hatches Lake, which is a summer resort. Price, \$8,500. Terms, reasonable. Owner will rent on shares; will also hire young man with small family by the year. Address Lewis Hopkins, Lebanon, N. Y., R. D.

*No. 535 — Farm of 90 acres; 1 mile from Pratts P. O. and railway station, on line of N. Y., O. & W. R. R.; 1 mile from school and churches; ½ mile from milk station. Highways, good. Surface of farm, level and rolling. Soil, black loam. Acres in timber, 12. Acres tillable, 80. Fruit, small orchard plums, cherries and pears. Best adapted to dairying and general farming. House, 14 rooms, in good condition. Outbuildings, main barn, 40x50; horse barn, 23x37; tool house, 40 feet long; hog and hen house: concrete stable. Watered, house, by well; fields, by spring and creek. Occupied by owner. Reason for selling, loss of family. Price, \$2,100. Terms, \$1,000 cash, balance on mortgage. Address J. H. Fort, agent, Oneida, N. Y.

No. 536 — Farm of 160 acres; 2 miles from Eaton P. O., R. D. 1, and railway station, on line of N. Y., O. & W. R. R.; 1 mile from school; 2 miles from Baptist and Presbyterian churches; 2 miles from butter and cheese factory; 2 miles from milk station; 7 miles from condensing plant. Highways, hilly, good. Nearest cities, Syracuse, 30 miles distant, population 146,000; Oneida, 12 miles distant, population 8,000, reached by rail or highway. Surface of farm, part hilly, part rolling and some level. Altitude, 1,500 feet. Soil, gravelly loam. Acres in meadow, 40; in natural pasture, 60; in timber, 20, mostly sugar maple. Acres tillable, 40. Fruit, 100 apple trees, pears, cherries, plums, etc. Best adapted to oats, corn, wheat. Fences, wire, fair condition. House, 14 rooms, in good condition. Outbuildings, large barn, with basement for 40 cows; horse barn and stable; corn house, with basement for

hogs. Watered, house, by well; barns, by springs piped to barn; fields, by springs and river. A branch of the Chenango River flows through this farm. Occupied by tenant. This farm is 2 miles from the State School of Agriculture at Morrisville, N. Y. Reason for selling, to settle an estate. Price, \$10,000. Terms, part cash, balance on time. Address J. E. Slaughter, executor, Warsaw, N. Y.

No. 537 — Farm of 30 acres; located on Main street of West Eaton; 3 miles from railway station at Eaton, on line of N. Y., O. & W. R. R. Altitude, 1,400 feet. West Eaton has a good school, 3 churches, 2 general stores, post-office, hotel, woolen manufacturing plant. Is near lake which is well stocked with great variety of fish. 3 miles from New York State School of Agriculture, 30 miles from Syracuse, 18 miles from Oneida, 30 miles from Utica. 5 acres truck and fruit land. House, 12 rooms, bath, furnace. For price and terms address D. E. Darrow, West Eaton, N. Y.

TOWN OF FENNER

Population 807

No. 537½ — Farm of 80 acres; located 3 miles from Cazenovia P. O., R. D. 1; ¾ mile from railway station at Chittenango Falls, on line of L. V. R. R., ¼ mile from school; ¼ mile from Methodist Episcopal church; ¼ mile from milk station. Highways, good, mostly macadamized. Nearest village, Cazenovia, population 2,000, 3 miles distant, reached by rail or highway. Surface of farm, mostly rolling. Altitude, 1,000 feet. Soil, gravel. Acres in meadow, 25; in natural pasture, 30; in timber, 6, mostly beech and maple. Acres tillable, 70. Fruit, 50 apple trees, 25 plum trees, 6 cherry trees, 2 pear trees; also ½ acre of small fruits. Best adapted to fruit and dairying. Fences, mostly wire. House, 12 rooms, painted, with blinds. Barns, 1 30x40, with basement; 1 18x30; horse barn, 20x40, fitted with hay carrier and track. Watered, house and barns, by spring; fields, by 2 springs. Chittenango Creek borders the west side of farm. 2 beds of black gravel, suitable for concrete work. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,500.

* Indicates farm is in hands of agent or real estate dealer.

Terms, one-half cash, balance on time. Address H. O. Turner, Cazenovia, N. Y., R. D. 4.

No. 538—Farm of 65 acres; located $3\frac{1}{2}$ miles from Cazenovia P. O., R. D. 1; 3 miles from railway station at Perryville, on line of Lehigh Valley R. R.; $\frac{1}{2}$ mile from school and Baptist church; 3 miles from milk station; $2\frac{1}{2}$ miles from butter factory and cheese factory. Highways, good. This farm is 20 miles from Syracuse, reached by rail. Surface of farm level. Altitude, 1,600 feet. Soil, sandy and gravelly loam. Acres in meadow, 57; in timber, 8, beech and maple. Acres tillable, 57. Fruit, orchard of apples, about 1 acre. Best adapted to hay, corn, grain, potatoes, peas, etc. Fences, new, barbed wire. House, 10 rooms, 2 fireplaces, good condition. Outbuildings, cow barn, with cement basement, good condition, horse barn, silo, hay barn, hen house, shed, etc., good condition. Watered by well, cistern and springs. Occupied by owner. Reason for selling, ill health of wife of owner. Price, \$5,000. Terms, \$2,000 cash, balance on mortgage. Address Louie W. Davis, Cazenovia, N. Y.

TOWN OF GEORGETOWN
Population 925

No. 539—Farm of 71 acres; 2 miles from Lebanon; 2 miles from Georgetown P. O.; 8 miles from Earlville; 3 miles from station on Chenango branch of N. Y. C. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches; R. D. 1 from Lebanon; 2 mile from butter and cheese factory; 2 miles from high school; 10 miles from Colgate College; $\frac{1}{4}$ mile from district school. Highways, good, partly State road. Nearest city, Syracuse, 34 miles distant. Rolling surface, southern slope. Soil, loam, clay subsoil. Acres in meadow, 50; natural pasture, 20; timber, 10, maple and beech. Acres tillable, 60. Fruit, 100 cherry trees, 50 grape hills, 50 apple trees, all in bearing. Best adapted to corn, oats, buckwheat, potatoes and grass. Fences, wire, in good condition. House, 5 rooms, in fair condition. House on telephone line. Barn, 24x36, with basement, in first-class condition. Watered, house and barn, by well; fields, by springs. Several small lakes and reservoirs from 2 to 5 miles distant from farm. Reason for selling, owner wants to retire. Price, \$30 per acre.

Terms, one-half down, balance to suit purchaser. Address L. A. Gustin, Lebanon, N. Y.

No. 540—Farm of 205 acres; located 3 miles from Lebanon P. O. and railway station on line of Chenango Valley R. R.; 1 mile from school and churches; 3 miles from butter factory and milk station. Nearest large village, Hamilton, 8 miles distant, reached by highway. Surface of farm, rolling. Altitude, 800 feet. Soil, clay loam. Acres in meadow, 100; in natural pasture, 50; in timber, 55, hemlock, beech and maple. Acres tillable, 100. Best adapted to oats, peas, corn and buckwheat. Fences, wire, fair condition. House, 45x30, good condition. Outbuildings, horse barn, 30x30; grain barn, 30x60. Watered by well and springs. Unoccupied. Price, \$4,000. Terms, one-half down, balance on mortgage. Address Fred B. Parker, Batavia, N. Y. Owner will rent.

TOWN OF HAMILTON
Population 3,825

No. 541—Small country place of about 2 acres; located at Hamilton Center; 1 mile from Poolville. House, 8 rooms, fair condition. Barn, in good condition; also hen house. Fruit, 25 young fruit trees, nearly ready to bear, 6 or 8 older trees, 12 currant bushes; also raspberry and blackberry bushes. Price, \$400 cash or \$450 on time. Address D. Gazlay, Hamilton, N. Y. Owner will rent.

No. 542—Farm of 132 acres; $1\frac{1}{2}$ miles from South Hamilton P. O., on line of D., L. & W. R. R.; 4 miles from station; 1 mile from school; $1\frac{1}{2}$ miles from church and butter and cheese factory. Highways, hilly, but in good condition. Occupied by owner. Surface, one-half level, the remainder moderately hilly. Soil, good black soil. Acres in meadow, 50; natural pasture, 42; timber, 40, beech, maple and hemlock; part of the woodland contains three or four thousand young maple trees. Acres tillable, 100. Fruit, 30 apple trees, some cherry and plum trees. Best adapted to hay, oats, corn and potatoes. Fences, wire, in good condition. House, 12 rooms, in good condition. Barns, basement cow barns, 30x40, in good condition; horse barn, 26x32, new; hen house, new. Watered, house, by good well; barns and fields, by stream and springs; a fine creek running the entire length of farm, good

fishing. Reason for selling, poor health of owner. Price, \$3,000. Terms, part cash, remainder to suit purchaser. Address E. E. Beekman, South Hamilton, N. Y.

No. 543 — Farm of 135 acres; $1\frac{1}{2}$ miles from P. O., R. D., and railway station, on line of D., L. & W. R. R.; 1 mile from school and churches; $1\frac{1}{2}$ miles from cheese factory and milk station; 5 miles from condensing plant. Highways, good. Nearest village, Hamilton, 5 miles distant, reached by rail or highway. Surface of farm, some hilly, rolling and level. Good soil. Acres in meadow, 50; in natural pasture, 30, in timber, 30, hemlock, maple, beech, etc. Acres tillable, 60. Fruit, 50 apple trees, 20 plums, 6 pears. Adapted to all kinds of crops. Fences, mostly wire, cedar posts, good condition. House, in good condition. Outbuildings, basement barn, hop house, hog pen, horse barn, hen house and silo, all in good condition. Watered, house, by well and cistern; barns, by well and spring; fields, by brook and spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,000. Terms, part cash, balance on mortgage. Address C. D. Alderman, Poolville, N. Y.

TOWN OF LEBANON
Population 1,079

No. 544 — Farm of 234 acres; located 3 miles from Lebanon P. O., R. D. 2, and railway station, on line of N. Y., O. & W. R. R.; 3 miles from school, churches and milk station. Highways, good. Nearest village, Hamilton, population 1,800, 6 miles distant, reached by highway. Surface, nearly level. Soil, clay loam. Acres in meadow, 100; in natural pasture, 100; in timber, 34, maple and beech. Acres tillable, 185. 200 apple trees. Best adapted to grass, oats, buckwheat and barley. Fences, wire and rail. New house. Barn, 40x50, medium condition. Watered, house, by spring; barn and fields, by running water. Occupied by owner. Reason for selling, old age of owner. Price, \$30 per acre. Terms, \$500 cash, balance at \$500 per year. Address O. Beebe, Lebanon, Madison Co., N. Y., R. D. 2. Owner will rent.

No. 545 — Farm of 200 acres; situated $1\frac{1}{2}$ miles from Lebanon P. O. and rail-

way station, on line of W. S. R. R., Syracuse to Earlville branch; R. D. 2 from Lebanon. Highways, good. Acres in meadow, 70; acres in timber, between 40 and 50, mostly sugar maple, some beech and basswood. Fruit, pears, cherries, plums and apples. Best adapted to oats, corn, barley, buckwheat, peas, potatoes, timothy, clover and alfalfa. Fences, board, woven wire and barbed wire. House, 30x40, with wing, 2 stories, in good condition. Barns, one, 40x111, with 25-foot posts; an ice house; milk room; a little house for hired man; a new silo; all in good condition. Watered, house, by well, pump inside; barns, spring water, inside; fields, by springs and streams. Occupied. Reason for selling, advanced age of owner. Price includes some tools, wagons, machinery, etc. Price, \$8,000. Terms, $\frac{1}{3}$, $\frac{1}{2}$ or $\frac{2}{3}$ down, balance on mortgage at 5%. Address John Fisk, Lebanon, N. Y.

*No. 546 — Farm of 664 acres; 2 miles from Lebanon P. O. and railway station, on line of N. Y. C. & H. R. R.; 2 miles from school and churches; $1\frac{1}{2}$ miles from milk station. Highways, fair. Surface of farm, rolling. Soil, Volusia and silt loam and Dunkirk clay. Acres in pasture, 300; in timber, 100, hemlock, maple, ash, elm, beech, basswood, etc. Acres tillable, 300. Fruit, few apples, plums, pears and cherries. Best adapted to dairying, grazing, stock raising, etc. Fences, wire and board, in good condition. House, 17 rooms, arranged for 2 families. Outbuildings, barn, 40x130, with gambrel roof and basement, 60 stanchions and 4 box stalls; silo, 18x28; horse barn, 26x40; granary, 26x40; ell to main barn, 26x36. Watered, house, by well and cistern; water in barns; fields, by 2 streams. Occupied by owner. Reason for selling, widow, cannot conduct farm. Price, \$20,000. Terms, \$12,000 cash, balance on mortgage. This price includes about 40 head of cattle, 7 horses, large quantity of tools, machinery, etc. Address J. H. Fort, agent, Oneida, N. Y.

No. 547 — Farm of 296 acres; located $1\frac{1}{2}$ miles from Lebanon P. O., R. D. 2, and railway station, on line of W. S. R. R., Chenango branch; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches and

* Indicates farm is in hands of agent or real estate dealer.

milk station; 3 miles from milk condensing plant. Highways somewhat hilly but good. Nearest city, Utica, 35 miles distant, reached by rail and highway. Surface of farm, level and rolling. Altitude, 1,200 feet. Soil, Miami stony loam. Acres in meadow, 50; in natural pasture, 100; in timber, 50, beech, maple and hemlock, first and second growth. Acres tillable, 100. Fruit, 50 trees. Best adapted to grass, corn, cabbage, fruits and dairying. Fences, woven and barbed wire, good condition. House, 12 rooms, woodshed attached, good condition, also good tenant house. Outbuildings, basement barn, silo, hen house, hog house and milk house, all in good condition. Watered by well, springs and brook. Occupied by owner. Price, \$7,000. Terms, cash. Address Mary M. Collier, Earlville, N. Y., R. D. 2.

*No. 548 — Farm of 36 acres; located 3 miles from Lebanon P. O., R. D. 1, and railway station, on Chenango branch of W. S. R. R.; 1 mile from school and church; 3 miles from milk station and milk condensing plant. Highways, hilly but good. Nearest large village, Earlville, 6 miles distant, reached by highway. Surface of farm, rolling. Acres in meadow, 21; in natural pasture, 10; in timber, 5, mostly maple, some beech. Acres tillable, 31. Fruit, apples, pears and plums. Best adapted to potatoes, corn, grain and hay. Fences, wire, fair condition. House, 10 rooms, good condition. Outbuildings, barn, fair condition. Watered by spring. Reason for selling, owner unable to work farm. Price, \$1,000. Terms, $\frac{1}{2}$ down, balance on mortgage. Address Luther C. Loomis, agent, Poolville, N. Y.

TOWN OF LENOX

Population 4,851

No. 549 — Farm of 77 acres; located 4 miles from Canastota P. O., R. D. 7; 2 miles from railway station at South Bay, on line of L. V. R. R.; 1 mile from school and churches; 2 miles from milk station; 4 miles from condensing plant. Highways, good. Surface, level. Nearest village, Oneida, population 8,000, about 5 miles distant, reached by highway. Soil, Dunkirk sand loam. Acres in meadow, 20; in natural pasture, 27; acres tillable, 50. Twenty

apple and 12 cherry trees. Best adapted to hay, grain and all general crops. Fences, wire, in fair condition. House, 9 rooms, nearly new. Barn, room for 8 cows and 2 horses; good hen house, pig pen, corn house, and wagon shed. Watered, house and barn, by wells; fields, by never-failing spring. Oneida lake 2 miles distant. Occupied by owner. Reason for selling, owner has another farm. Price, \$2,500. Terms, \$1,000 cash, balance on long time. Address David K. Eames, Canastota, N. Y., R. D. 7.

*No. 550 — Farm of 203 acres; 2 miles from P. O., R. D., and railway station at Canastota on line of N. Y. C. & H. R. R., Lehigh Valley R. R., West Shore R. R., and an electric line; 2 miles from high school and Baptist, Methodist, Presbyterian and Catholic churches; 2 miles from butter factory, milk station and condensing plant. Highways, good. Nearest city Syracuse, 20 miles distant, population 140,000; Canastota, population 3,500, reached by rail and highway. Surface of farm, slightly rolling. Altitude, 425 feet. Soil, clay and sandy loam, also muck. Acres in meadow, 50; in natural pasture, 40; 6 acres alfalfa, 3 acres timber of various kinds. Acres tillable, 160. Fruit, small orchard. Best adapted to corn, oats, wheat, hay, onions and celery. Fences, woven, barbed wire and rail. House, 10 rooms, wood shed attached, in good condition. Outbuildings, basement barn, cement floor, 32 stanchions and box stall; barn, 30x40, with large shed attached; barn, 30x40, with shed, 22x24; horse barn, wagon house, hog pen, 2 chicken houses, 2 silos, all in good condition. Occupied by owner. Reason for selling, advanced age of owner. Price, \$12,000. Terms, on application. Owner will sell stock and tools, if desired. Address Charles S. Hutchinson, agent, 107 West Kennedy street, Syracuse, N. Y.

*No. 551 — Farm of 75 acres; $4\frac{1}{2}$ miles from Canastota P. O. and railway station, on lines of N. Y. C. & H. R. R., Erie R. R., Lehigh Valley R. R., West Shore R. R. and trolley line; $\frac{3}{4}$ mile from school. Highways, State road. Nearest large village, Canastota, population 2,500, $4\frac{1}{2}$ miles distant, reached

* Indicates farm is in hands of agent or real estate dealer.



FIG. 132.— HOUSE ON FARM NO. 550, TOWN OF LENOX,
MADISON COUNTY.



FIG. 133.— BUILDINGS ON FARM NO. 550, TOWN OF
LENOX, MADISON COUNTY.

by highway. Surface of farm, nearly level. Soil, clay loam. Acres tillable, over 50. Fruit, 25 apple trees. Adapted to hay and general farming. Fences, wire, in fair condition. House, 9 rooms, in good condition. Outbuildings, barn, 24x36; barn, 12x20; hen house and hog pen. This farm is 2 miles from Oneida lake. Occupied by owner. Reason for selling, has another farm. Price, \$2,500. Terms, \$1,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF NELSON

Population 1,139

No. 551½ — Farm of 192½ acres; located 1 mile from Erieville P. O.; 1 mile from railway station at Erieville, on line of N. Y. C. & H. R. R.; 1 mile from school, Methodist Episcopal and Baptist churches, butter factory, cheese factory and milk station. Highways, good. Nearest village, Erieville, population 500, 1 mile distant, reached by highway. Surface of farm, rolling. Altitude, 1,700 feet. Soil, loam. Acres in meadow, 70; in natural pasture, 70; balance in timber, beech, birch, maple, hemlock, basswood; acres tillable, 140. Fruit, apples and pears. Best adapted to corn, potatoes and hay. Fences good. House, 2 stories, in good condition. Cow barn, basement, 32x80. Watered, house, by well; fields, by living springs. Occupied by tenant. Reason for selling, owner has too many farms. Price \$26 per acre. Address N. E. Richards, Nelson, N. Y. Owner will rent.

No. 552 — Farm of 110 acres; located 4 miles from Erieville P. O., R. D. 1; 4 miles from railway station at Erieville, on line of Chenango branch of N. Y. C. & H. R. R. R.; ¾ mile from school, Methodist and Congregational churches; ½ mile from butter factory and cheese factory; 4 miles from milk station. Highways, hilly, but good. Nearest village, Cazenovia, population 1,800, 7 miles distant, reached by highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 30; in natural pasture, 40; in timber, 40, maple, beech and hemlock; acres tillable, 69. Fruit, 30 apple, 3 pear, 4 plum trees and 1 cherry tree. Best adapted to hay, grain and dairying. Fences, wire, in good con-

dition. House, 12 rooms, 2 stories, in good condition. Barn, 50x32, in good condition. Watered, house and barn, by well; fields, by springs and stream. Occupied by owner. Reason for selling, poor health of owner. Price, \$32 per acre. Terms, \$1,500 cash, balance on easy terms. Address N. E. Richards, Nelson, N. Y. Owner will rent.

No. 553 — Farm of 110 acres; located 2 miles from P. O., R. D.; 2 miles from railway station at Cazenovia, high school, seminary, churches, butter factory, cheese factory and milk station. Highways, State road. Mail delivered four times a day. Nearest large village, Cazenovia 2 miles distant, reached by rail and highway; nearest city, Syracuse, population 138,000, 18 miles distant, reached by rail and highway. Surface of farm, chiefly level, some rolling, eastern exposure. Altitude, 1,600 feet. Soil, limestone, gravelly loam. Acres in meadow, 82; in natural pasture, 28; timber, 2, maple, beech, elm and white ash; acres tillable, 90. Fruit, 7 pear trees, 70 apple trees, 2 plum, crab apple, berries of all kinds, currants and grapes for family use. Best adapted to hay, alfalfa, corn and grain. Fences, wire and rail. House, large, 19 rooms, suitable for summer boarders, overlooks 3 bodies of water; Bell telephone in house. Barns, large hay barn, new dairy barn with concrete floors and modern stanchions, hogpen, carriage barn, shed, large hop kiln and silo, 16x25. Watered, by new drill well; pump in house; water can also be easily piped to barns; fields, by springs and large watering troughs. Cazenovia Lake, Erieville Reservoir, and Oneida Lake can be seen from building; Chittenango Falls, 5 miles distant. This farm has a good summer market for poultry and eggs, also for truck gardening and milk. Large canning factory for corn and peas at Cazenovia. Occupied by owner. Reason for selling, poor health of owner. Price, \$4,500. Terms, mostly cash. Address Wm. H. Putnam, Cazenovia, R. D.

No. 554 — Farm of 86 acres; located 3 miles from Erieville P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; 3 miles from churches; 5 miles

* Indicates farm is in hands of agent or real estate dealer.

from Cazenovia, a summer resort. Highways, good. Surface partly level and partly hilly. Soil, loam. Acres tillable, 80. Fruit, apples, plums and pears. Best adapted to grass, grain, corn, potatoes and cabbage. House, 1½ stories, 8 rooms. Watered by well and cistern. Outbuildings, barn, 36x56, with basement stable for 20 head of cattle, 13 swing stanchions, silo and hen house. Barn watered by spring brook. Reason for selling, ill health of owner. Price, \$2,000. Terms, \$750 down, balance on mortgage. Address A. R. Warren, Cazenovia, N. Y. Owner will rent.

TOWN OF ONEIDA

Population 8,317

*No. 555 — Farm of 100 acres; 5 miles from Oneida P. O., R. D., and railway station, on line of N. Y. C. and West Shore R. R.; ¼ mile from school; 5 miles from churches of nearly all denominations. Highways, mostly level. Nearest city, Oneida, population about 10,000, 5 miles distant, reached by highway. Surface of farm, nearly all level. Soil, limestone gravel loam. Acres in alfalfa, 25; in timber, 6. Fruit, small old apple orchard, also plums, cherries and grapes. Best adapted to dairying, alfalfa, hops and general farming. House, 12 rooms, small repairs needed. Outbuildings, basement barn, 50x60, room for 25 head of cattle; horse barn; hog pen; hen house, and granary, 35x50, all in fair to good condition. Occupied by tenant. Reason for selling, owner lives elsewhere. Price, \$3,250. Terms, \$1,200 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF SMITHFIELD

Population 880

No. 556 — Farm of 108 acres; located 7 miles from Canastota P. O., R. D. 5, and railway station, on line of N. Y. C. R. R.; ¾ mile from school; 3 miles from churches, butter factory and milk station; 1 mile from cheese factory; 7 miles from milk condensing plant. Highways good. Nearest city, Oneida, 8½ miles distant, population about 9,000, reached by highway. Surface of farm, gently sloping to the south. Altitude, about 1,400 feet. Soil, Miami loam (lime).

Acres in meadow, 25; in natural pasture, 10; in timber, 20, basswood, maple, etc. Acres tillable, 88. Fruit, 75 apple, 15 plum and 10 cherry trees. Best adapted to alfalfa, clover, wheat, corn, oats, cabbage, etc. Fences, woven and barbed wire. House, large, 1½ stories. Outbuildings, hay barn, 28x62, with basement; horse barn, 24x32; pig and hen house; 24 swing stanchions in cow stable, new, concrete. Watered by well and spring. Oneida lake is 8 miles from farm. Occupied by tenant. Reason for selling, owner lives in Oneida and cannot attend to farm. Price, \$5,400. Terms, \$900 down. Address E. Emmons Coe, Oneida, N. Y. Owner will rent.

TOWN OF STOCKBRIDGE

Population 1,485

No. 557 — Farm of 153 acres; located 3 miles from stockbridge P. O., R. D. 1; 5 miles from railway station at Oneida Castle, on line of W. S. and O. & W. R. R.; ¼ mile from school; 2 miles from Methodist church; 2 miles from cheese factory; 4 miles from milk station. Highways, good, one hill. Nearest city, Oneida, population 9,000, 6 miles distant, reached by highway. Surface of farm, nearly level, except 25-acre side hill, sloping east. Altitude, 500 feet. Soil, limestone. Acres in meadow, 40; in natural pasture, 25; in timber, 18, basswood and hard wood; all tillable except woodland. Fruit, apple orchard, some cherry and plum trees. Adapted to all crops raised in this climate, a good dairy farm. Fences, woven wire, barbed wire and stone wall. Two houses, one 15 rooms, one 12 rooms, wood, in good condition. Two sets of barns; 2 on basement, 56x36 and 40x30; and two large sheds; hophouse; storehouse; hogpen on basement; silo, 12x24. Watered, house, by well; barns, by running water in yard; fields, by springs and wells. Three miles from Oneida creek, 14 miles from Oneida lake. Occupied by tenant. Two farms, could be divided, but would not sell unless all sold. A good hop farm. Reason for selling, owner unable to work farm himself. Price, \$50 per acre. Terms, part cash, will take mortgage on balance. Address N. I. Porter, Oneida, N. Y., R. D. 2, Box 3.

* Indicates farm is in hands of agent or real estate dealer.

*No. 558 — Farm of 140 acres; 2½ miles from Munnsville P. O.; 1½ miles from railway station at Pratts, on line N. Y., O. & W. R. R.; 1 mile from school; 1½ miles from milk station. Highways, hilly. Nearest large village, Munnsville, 2½ miles distant, reached by highway. Surface of farm, hilly. Soil, limestone gravel loam. Acres in alfalfa, 30; in timber, 10, both first and second growth. Acres tillable, 120. Fruit, 2 acres apples. Best adapted to dairying, alfalfa, hops, etc. Fences, fairly good. House, 15 rooms, good condition. Outbuildings, basement barn, 33x40; horse barn for 6 horses; hop kiln, 30x70; hen house; shop; smoke house; milk house; all in fair condition. Occupied by owner. Reason for selling, advanced age of owner. Price, \$7,000. Terms, \$3,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 559 — Farm of 96 acres; ½ mile from Valley Mills P. O. and railway station, on line of N. Y., O. & W. R. R.; 2 and 3 miles from several churches; ½ mile from milk station. Highways, fair. Nearest city, Oneida, population about 10,000, 6 miles distant, reached by rail or highway. Surface of farm, level. Soil, gravel loam. Acres in alfalfa, 20; in timber, 6. Acres tillable, 66. Fruit, 2 good orchards. Best adapted to dairying, hops, alfalfa, and general farming. Fences, fair condition. House, fair condition. Outbuildings, barn, 40x80, with gambrel roof and basement, cement floors and 32 stanchions, granary, all in good condition. Watered, house, by spring and cistern; barns and fields, by springs. Occupied by owner. Reason for selling, owner wants to retire. Price, \$3,200. Terms, \$1,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 560 — Farm of 80 acres; 1 mile from Valley Mills P. O., and railway station on line of N. Y. O. & W. R. R.; ½ mile from school; 1 mile from churches and milk station. Highways, good. Nearest city, Oneida, population 10,000, 6 miles distant, reached by rail or highway. Surface of farm, nearly level. Soil, gravel and sandy loam. Acres in alfalfa, 35; in timber, 10.

About all tillable. Fruit, 120 apple trees, grafted fruit, 12 pears, 25 cherries, 20 plums, 1 acre raspberries; ¼ acre strawberries. Best adapted to dairying, alfalfa, hops, fruit, corn and general farming. Fences, mostly wire, some rail. House, 16 rooms in good condition. Outbuildings, basement barn, 30x50, newly painted; barn, 30x40; barn, 26x34; shop 10x12, in fair to good condition. Watered, house by well. Occupied by owner. Reason for selling, ill health. Price, \$7,000. Terms, half cash, balance on mortgage. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

*No. 561 — Farm of 75 acres; 2 miles from Stockbridge P. O. and railway station on line of N. Y. O. & W. R. R.; ½ mile from school; 2 miles from churches of several denominations; 2 miles from milk station. Highways, mostly nearly level. Nearest city, Oneida, population about 10,000, 6 miles distant, reached by rail or highway. Surface of farm, nearly level, some rolling. Soil, limestone loam. Acres in timber, 6, 200 sugar maples. Acres tillable, 65. Fruit, good apple orchard, 25 plums, few black pears, 1 acre black caps. Best adapted to alfalfa, dairying, hops, fruit and general farming. Fences, good. House, 11 rooms. Outbuildings, cow barn, with cement basement; hen house; silo, 15x24. Watered, house by running spring and cistern; fields, by running water in pasture. Occupied by owner. Price, \$4,000. Terms, \$2,500 cash, balance on mortgage. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

*No. 562 — Farm of 100 acres; 2½ miles from Knoxboro P. O.; 3 miles from railway station at Solsville, on line of N. Y. O. & W. R. R.; ½ mile from school; 2½ miles from churches of several denominations; 3 miles from milk station. Highways, good. Nearest large village, Munnsville, 4 miles distant, reached by highway. Surface of farm, 75% level. Soil, gravel limestone loam. Acres in timber, 18, first-class. Acres tillable, 65. Fruit, 2-acre orchard. Best adapted for dairying, hops, alfalfa, potatoes, corn, etc. Fences, mostly wire in good condition. House, big square one in good condition. Outbuildings, good basement cow barn, good hop kiln and smaller buildings. Wa-

* Indicates farm is in hands of agent or real estate dealer.

tered, house, by well; barns and fields, by springs. Unoccupied at present. Reason for selling, advanced age of owner. Price, \$4,000. Terms, \$1,500 cash, balance on mortgage. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

*No. 563 — Farm of 150 acres; 3 miles from Stockbridge P. O., and railway station on line of N. Y. O. & W. R. R.; 90 rods from school; 2 miles from churches and butter factory; 3 miles from milk station. Highways, $\frac{1}{2}$ level, some rolling. Nearest city, Oneida, 8 miles distant, reached by rail or highway. Surface of farm, 25 acres side hill, balance level. Soil, limestone gravel loam. Acres in alfalfa, 15; in natural pasture, 25; in timber, 18, basswood and hardwoods. Fruit, apples, plums, pears and cherries sufficient for own use. Best adapted to dairying, alfalfa, hops and general farming. Fences, wire and stone wall. Houses, one has 12 rooms and another, 15 rooms, both in fair condition. Outbuilding, barn, 20x30; barn, 30x40; barn, 30x50; barn 30x50; hog house; store house; hop house; silo, all in fair condition. Watered, house by well and cistern; barns by running water; fields, by running water. Occupied by tenant. Reason for selling, to settle an estate. Price, \$8,750. Terms, \$3,750 cash, balance on mortgage. This price includes undivided interest in 27 cows and young stock. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

*No. 564 — Farm of 220 acres; 4 miles from Munnsville P. O.; 3 miles from railway station at Pratts, on line of N. Y. O. & W. R. R.; 1 mile from school; $3\frac{1}{2}$ miles from milk station. Highways, hilly, but good. Nearest city, Oneida, population 8,317, 7 miles distant, reached by rail or highway. Surface of farm, rolling and level, partly drained with tile. Soil, limestone gravel loam. Acres in alfalfa, 70; in timber, 7, sugar bush. Acres tillable, 210. Fruit, 70 apple trees, cherries, plums and pears. Best adapted to dairying, alfalfa, hops and general farming. Fences, good, mostly wire. House, 13 rooms. 2 tenant houses, all in good condition. Outbuildings, gambrel roof; basement barn, 36x86; horse barn, 32x40; large hop house; 2 silos; several other buildings, all in good condition. Watered, house

by running water; barns and fields, by running water. Occupied by owner. Reason for selling, has other interests. Price, \$14,000. Terms, \$5,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

No. 565 — Farm of 75 acres; 2 miles from Stockbridge P. O., R. D.; $2\frac{1}{2}$ miles from railway station at Munnsville on line of N. Y. O. & W. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from Methodist church; $1\frac{1}{2}$ miles from butter and cheese factory; 3 miles from milk station. Highways, good. Nearest city, Oneida, population 8,317, 8 miles distant, reached by rail or highway. Altitude, 1,200 ft. Soil, limestone loam. Acres in alfalfa, 30; in natural pasture, 7; in timber, 6, maple, basswood and elm. Acres tillable, 62. Fruit, 75 apple, 10 pears, 17 plums, 7 cherries, 1 acre black caps, 1 acre asparagus. Best adapted to alfalfa, dairying, general farming, etc. Fences, barbed wire. House, 12 rooms in good condition. Outbuildings, basement barn, 70x40; hen house; ice house; silo and wagon house. Watered, house, barns and fields by running water. Occupied by owner. Reason for selling, poor health of owner. Price, \$4,000. Terms, cash, or credit, \$5,000. Farming implements will be included if party pays cash. Address Arthur J. Branagan, Sr., Stockbridge, R. F. D. No. 1, N. Y.

No. 566 — Farm of 84 acres; 1 mile from Stockbridge P. O., R. D.; 1 mile from railway station at Valley Mills on line of N. Y. O. & W. R. R.; $\frac{1}{2}$ mile from school; 1 mile from Methodist and Episcopal churches; $\frac{3}{4}$ mile from butter and cheese factory and 1 mile from milk station. Highways, good. Nearest city, Oneida, population 8,317, 7 miles distant, reached by rail and highway. Surface of farm, level. Altitude, 650 feet. Soil, sandy, gravel. Acres in meadow, 40; in natural pasture, 26; in timber, 12, hardwood and basswood. Acres tillable, 68. Fruit, 150 apples, 20 cherries, 20 plums, 10 pears, quinces, grapes, currant and other small fruits. Best adapted to general farming. Fences, wire, in good condition. House, 94 feet front in good condition. Outbuildings, barns, 30x24, 40x30, 50x30, in good condition. Watered, house, by well; barns, by well; fields, by creeks. Occupied by

* Indicates farm is in hands of agent or real estate dealer.

owner. Reason for selling, ill health. Price, \$7,000. Terms reasonable. Address S. D. Bridge, Stockbridge, N. Y.

No. 567 — Farm of 132 acres; 1 mile from Munnsville P. O., R. D.; $1\frac{1}{2}$ miles from railway station at Valley Mills on line of N. Y., O & W. R. R.; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from churches; $1\frac{3}{4}$ miles from butter and cheese factory; $1\frac{1}{2}$ miles from milk station; $3\frac{1}{2}$ miles from condensing plant. Highways, good. Nearest city, Oneida, population 8,317, 6 miles distant, reached by rail and highway. Surface of farm, level and rolling. Soil, clay loam. Acres in meadow, 35; in natural pasture, 45; in timber, 9, hemlock, beech, basswood, maple. Acres tillable, 123. Fruit, 225 apple, 75 pear, 8 cherry, 3 plum. Best adapted to alfalfa, corn, oats, wheat, potatoes, etc. Fences, woven and barb wire. House, large double, 20 rooms, in good condition. Outbuildings, cow barn, 32 stanchions, large horse barn and carriage house, stone hop kiln and storehouse, ice house, hen house, hog pen, 2 silos. Watered, house, by spring; barns, by running water; fields, by brooks. This farm is 15 miles from Oneida lake. Occupied by owners. Reason for selling, to settle an estate. Price, \$9,000. Terms, $\frac{1}{4}$ cash, balance on mortgage. Would also sell stock to purchaser of farm. Address F. H. Rivenburgh, Munnsville, N. Y.

No. 568 — Farm of 200 acres; 1 mile from Stockbridge P. O., R. D.; 1 mile from railway station at Valley Mills, on line of N. Y., O. & W. R. R.; 1 mile from school and churches; $\frac{3}{4}$ mile from butter and cheese factory; 1 mile from milk station. Highways, good. Nearest city, Oneida, population, 8,317, 8 miles distant, reached by rail or highway. Surface of farm, level and sloping. Altitude, 300 feet. Soil, gravel and clay loam. Acres in meadow, 40; in natural pasture, 75; in timber, 20, maple, basswood, hemlock, etc. Acres tillable, 175. Fruit, 1,000 apple trees, 20 pears, 20 cherries, 10 plums. Best adapted to corn, hops, alfalfa, wheat, oats, etc. Fences, woven and barb wire. House, 14 rooms, in good condition. Outbuildings, four barns in first class condition, stable room for 40 head of cattle, silos, milk house, hen house, hog

pen, ice house and hop house. Watered, house and barns, by running spring water; fields, by brooks and springs. This farm is 15 miles from Oneida lake. Occupied by owner. Reason for selling, wishes to retire. Price, \$20,000. Terms, $\frac{1}{4}$ cash, balance on mortgage. Address J. E. Quackenbush, Valley Mills, N. Y. Owner will rent with option to buy.

TOWN OF SULLIVAN

Population 3,367

No. 569 — Farm of 144 acres; located $2\frac{1}{4}$ miles from Chittenango P. O., R. D. 1; 2 miles from railway station at Blakeslee, on line of Lehigh Valley R. R., or $4\frac{1}{4}$ miles from railway station at Chittenango, on line of N. Y. C. R. R.; $2\frac{1}{4}$ miles from school, Catholic and Protestant churches; $\frac{3}{4}$ mile from butter factory; 2 miles from milk station. Highways, somewhat hilly, but usually good. Nearest cities, Oneida, 10 miles distant, and Syracuse, 16 miles distant, reached by rail and highway. Surface of farm, hilly, rolling and level, no stone. Soil, limestone. Acres in meadow, 100; in natural pasture, 40; in timber, 4, cedar, maple and basswood. Acres tillable, 120. Fruit, plums, cherries, currants, grapes and a fine young orchard of 130 apple trees. Best adapted to oats, peas, corn, wheat, potatoes and alfalfa. Fences, wire, fair condition. House, 26x40, good condition. Outbuildings, barn, 125x26; barn, 36x40; hog house, hen house and tool house. Watered, house and barns, by springs; fields, by creek. Occupied by tenant. Price, \$4,000. Terms, \$2,000 cash. Address Mrs. Kate W. Cook, Little Falls, N. Y.

*No. 570 — Farm of 150 acres; 2 miles from Bridgeport P. O.; 9 miles from Syracuse railway station on line of N. Y. C. & H. R. R. and other lines; 2 miles from school and churches; creamery on the farm. Highways, good. Nearest city, Syracuse, population 137,249, 9 miles distant, reached by highway. Surface of farm, level. Soil, good productive land. Acres tillable, 125. Fruit, few apple trees. Best adapted to hay, etc. Houses, 1 9-room house, few minor repairs needed, also 7-room cottage on lake shore of Oneida lake. Outbuildings,

* Indicates farm is in hands of agent or real estate dealer.

large barn with stanchions for 24 head cattle, carriage house, poultry house, 100 feet long, silo. Watered, house, by well; barns, by force pump and engine; fields, by Oneida lake and Chittenango creek. This farm has a fine frontage on Oneida lake. Occupied by owner. Reason for selling, owner has other business. Price, \$8,500. Terms, \$2,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 571 — Farm of 112½ acres at Chittenango P. O.; 3 miles from railway station at Chittenango station lines of N. Y. C. & H. R. R., West Shore R. R., Oneida Railway trolley; ¼ mile from school; ¼ mile from churches of several denominations; 3 miles from milk station. Highways, excellent. Nearest village, Chittenango, population 678. Surface of farm, rolling. Acres in alfalfa, 50. Fruit, small orchard, also plums, pears and peaches sufficient for home use. Best adapted to alfalfa, corn, wheat, oats, barley, potatoes, etc. Fences in good condition. House, brick, 11 rooms. Outbuildings, basement barn

with cement stables, horse barn, hay barn and other buildings, all in good condition. Watered, house, by well; barns, by running water; fields, by stream. Occupied by owner. Reason for selling, to settle an estate. Price, \$100 per acre. Terms, \$5,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 572 — Farm of 15 acres; located in Chittenango, P. O.; 3 miles from railway station at Chittenango Station, on lines of N. Y. C. & H. R. R. and Oneida trolley; ¼ mile from school; ¼ mile from churches of several denominations. Highways, good. Nearest village, Chittenango, population 678. Surface of farm, half level, half wooded hill. Fruit, young orchard and some grapes. Best adapted for a country residence. House, colonial style, 16 rooms, with toilet, bath and furnace. Outbuildings, fine large barn, also tenant house. Occupied by owner. Reason for selling, has other interests. Price, \$10,000. Terms, reasonable. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

MONROE COUNTY

Area, 721 square miles. Population, 283,212. Annual precipitation, 37.5 inches. Annual mean temperature, 49.9°. Number of farms, 5,971. County seat, Rochester.

This county lies in the western part of the state and is bounded on the north by Lake Ontario. It is considered the richest agricultural county in the state. It is intersected by the Genesee River which flows northward and enters the lake seven miles north of Rochester. The county is also well drained by several other streams and creeks.

The surface is nearly level; clay loam soil predominates in the northwestern part of the county and a rich gravelly loam is found in the valleys drained by the Irondequoit and Genesee Rivers. Eighty-nine and three-tenths per cent. of the land area is improved. There are extensive deposits of gypsum, iron ore, water lime and Medina sandstone in the county. It ranks first in the production of apples and wheat, second in peaches and potatoes, third in currants, beans, barley and oats and fourth in strawberries and raspberries. The principal crops are corn, 779,032 bushels; oats, 1,385,560 bushels; wheat, 866,903 bushels; barley, 73,960 bushels; rye, 101,568 bushels; dry beans, 241,502 bushels; potatoes, 2,796,728 bushels; hay and forage, 97,959 tons. The average size of farms is 64½ acres. The total valuation of farm property is \$59,764,614, an increase in value of 49.3 per cent. during the past ten years. The average value of land per acre is \$87.92, an increase of \$23.80 during the last decade. The value of improved land is \$113.88 per acre. Domestic animals are as follows: Dairy cows, 17,198; horses, 20,639; swine, 21,786; sheep, 30,700; poultry, 300,139; production of milk, 8,702,188 gallons. The value of all dairy products is \$733,397. Rochester and Buffalo furnish unlimited markets for the produce of the farmers. The county is intersected by the Erie Canal (now being enlarged into a barge canal), by three lines of the New York Central & Hudson River Railroad, also the West Shore; Buffalo, Rochester & Pittsburgh; the Pennsylvania and Lehigh Valley railroads and two branches of the Erie railroad. Trolley lines extend in all directions from Rochester, a city of 218,149 inhabitants.

Monroe is noted the country over for its nurseries. It grows annually an immense

* Indicates farm is in hands of agent and real estate dealer.



FIG. 134.— HOUSE ON FARM NO. 571, TOWN OF SULLIVAN, MADISON COUNTY.



FIG. 135.— HILLTOP VIEW OF CHITTENANGO VALLEY, MADISON COUNTY.

quantity of seeds, plants and trees. There are 200 district schools, excellent high schools in villages and towns with a state normal school located at Brockport. There are 115 miles of state and county roads and 1,077 miles of improved highways. Twenty-six agricultural organizations are devoted to the interest of the farmer.

TOWN OF CLARKSON

Population 1,549

No. 573 — Farm of 120 acres; 3 miles from Clarkson P. O., R. D. 19; 2 miles from station of Brockport, on line of the Falls branch of N. Y. C. & H. R. R. R.; $\frac{1}{4}$ mile from district school; 2 miles from State Normal school and high schools and 7 churches of all denominations; 3 miles from cheese factory; 2 miles from canning factory. Good earth roads, level; State road to be built soon. Nearest village, Brockport, population 4,000, distant 2 miles; by trolley $\frac{3}{4}$ mile from farm. Surface, south half sloping north, north half, level. Altitude, about 550 feet. Soil, clay loam, first-class. No waste land. Has 17 acres of timber, largely young growth beech, maple elm and basswood. Acres tillable, 102. Has 50 old apple trees, 391 apple trees 4 years old, 3 pear trees, 1 plum, 3 cherries, 1 quince, currants and raspberries in garden, 5 black walnut trees. Land is best adapted to wheat, corn, oats, beans, barley, cabbage, hay, or any crops grown in this climate. Fences, stone, with wire above, and woven wire, in fair condition. Stone house, with frame wings, 14 rooms, good condition, suitable for one or two families. Gambrel roof barn, 40x95, sheds, 20x70 and 16x40. Cornhouse and hog and hen house, 20x40, 2 stories, all matched and painted, in good condition. House has well and 2 cisterns; barn has well, never dry; fields have springs; Lake Ontario 8 miles away. Prefer to sell stock, teams, tools and standing crops. Occupied by owner. Reason for selling, owner wishes to move to warm climate. Price, \$160 per acre. Terms, can be arranged. Address A. D. McBain, Clarkson, N. Y.

TOWN OF MENDON

Population 2,754

* No. 574 — Farm of 155 acres; located 2 miles from Mendon P. O.; $1\frac{1}{2}$ miles from railroad station at Railroad Mills, on line of N. Y. C. & H. R. R. R.; $\frac{3}{4}$ mile from school; 2 miles from Cath-

olic and Protestant churches; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Rochester, 11 miles distant, reached by rail. Surface of farm, level. Altitude, 600 ft. Soil, clay loam. Acres in meadow, 20; in natural pasture, 10; in timber, 20, beech, elm, maple, second growth. Acres tillable, 110. Enough fruit for family use. Best adapted to general farming. Fences, wire, good condition. House, 10 rooms, good condition. Outbuildings, main barn, 30x125; gambrel roof, 10 stanchions and 7 stalls with shed attached, good condition; hen house; hog pen on concrete wall and carriage house, 18x20. Watered by well, windmill and stream. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$9,500. Terms, \$5,000 cash, remainder on mortgage at 5% interest. Address Garfield Real Estate Co., 1 Exchange street, Rochester, N. Y.

TOWN OF PENFIELD

Population 2,977

* No. 575 — Farm of 44 acres; located 3 miles from Webster P. O., R. F. D. and railway station, on line of R. W. & O. R. R. and Rochester-Sodus trolley; 1 mile from school, Lutheran church and milk station. Highways, good. Nearest city, Rochester, 11 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 485 ft. Soil, sand loam and muck. Acres in timber, 6, white ash, elm, hard and soft maple. Acres tillable, 35. Fruit, apples, pears, peaches and quinces, all three years old. Best adapted to hay, oats, corn, potatoes, cabbage, etc. No fences. House, 6 rooms, rebuilt 1910, good condition. Outbuildings, main barn, 18x24, good condition, rebuilt 1910; chicken house and new hog pens. Watered by well. Occupied by owner. Reason for selling, owner wants to locate on larger farm. Price, \$5,000. Terms, \$1,600 cash, balance on mortgage at 5% interest. Address Garfield Real Estate Co., 1 Exchange street, Rochester, N. Y.

* Indicates farm is in hands of agent and real estate dealer.

MONTGOMERY COUNTY

Area, 396 square miles. Population, 57,567. Annual precipitation, 36.95 inches. Annual mean temperature, 49.3°. Number of farms, 2,189. County seat, Fonda.

This county is situated in the eastern part of the state in the Mohawk Valley which traverses the county through its center from east to west. It is also drained by the Schoharie River. Most of the surface is undulating interspersed with level stretches, but the long and fertile valley of the Mohawk is level. The soil in this valley is a rich black loam with areas of gravelly loam. In the rolling lands in the southern part of the county limestone and black slate soil are much in evidence, giving high adaptation to pasturage. Quarries of Trenton limestone and other good building stone are found in the county.

While adapted to all kinds of farming the leading crops were corn, 398,357 bushels; oats, 726,120 bushels; buckwheat, 133,434 bushels; potatoes, 193,644 bushels; hops, 148,329 pounds; hay and forage, 130,173 tons. Total valuation of all farm property is \$15,460,574, an increase of 10.6 per cent. over the last census. Montgomery is another of the many counties of the state where the price of land should double in value in the next ten years; the present value of improved lands being \$50.51 per acre and of the land alone, \$26.92. Domestic animals are reported from almost every farm in the county classified as follows: Dairy cows, 22,804; horses, 7,639; swine, 9,098; sheep, 3,902; poultry, 143,302; milk produced, 13,135,104 gallons; value of all dairy products, \$1,277,634.

The county is intersected by the Erie canal, the New York Central & Hudson River; Fonda, Johnstown & Gloversville, and West Shore railroads. Electric lines also connect Fonda, Johnstown, Gloversville and Amsterdam with Albany, Schenectady and Troy. Amsterdam, the metropolis of the county, has a population of 31,276, contains two academies, large carpet mills, knitting mills and other industries. There are ample home markets for garden truck, fruit and other products of the farm. There are 109 district schools, 11 agricultural societies and organizations, 70 miles of state and county roads and 635 miles of other improved highways.

TOWN OF AMSTERDAM

Population 3,074

* No. 576 — Farm of 148 acres; located 4 miles from Amsterdam P. O. and railway station; on line of N. Y. C. R. R.; 2 miles from school. Soil, 100 acres of excellent land. Acres in timber, 25, hemlock. House, 2 stories, brick, 10 rooms, good condition. Outbuildings: new barn, 30x70. Watered, by well and spring. Owner will trade for city property. Price, \$6,500. Address H. L. Reed, agent, Amsterdam, N. Y.

TOWN OF CHARLESTON

Population 900

No. 577 — Farm of 300 acres; 2 miles from Charleston-Four-Corners; 9 miles from Fultonville station; 5 miles from Glen Village P. O., R. D. Fifty acres in woodland; 250 acres in meadow. Best adapted to hay, grain and dairying. House, small, needs repairing. Barns, 30x60, 26x64; hop barn, 26x44, fair condition. Watered by well and spring. Fences, fair. Price, \$10 per acre. Terms, $\frac{1}{2}$ cash, balance on mortgage, if desired. Address R. B. Fish, Fultonville, N. Y. Owner will rent.

TOWN OF FLORIDA

Population 1,904

No. 578 — Farm of 117 acres; located 5 miles from Amsterdam P. O., R. D. No. 2 and railway station, on line of N. Y. C. & H. R. R. Co.; 2 miles from school and Protestant churches; $4\frac{1}{2}$ miles from milk station. Highways, good. Surface of farm, rolling. Altitude, 500 ft. Soil, black slate. Acres in meadow, 70; in natural pasture, 30; in timber, 17, second growth. Acres tillable, 100. Fruit, apples, about 5 acres. Best adapted to hay and grain. Fences, wire. House, 2 stories. Outbuildings, good size barns, wagon house, stable, etc. Watered by well and springs. Occupied by owner. Reason for selling, owner a widow. Price, \$6,000. Address Edgar Young, administrator, Amsterdam, N. Y., R. D. No. 1.

TOWN OF MINDEN

Population 4,645

* No. 579 — Farm of 50 acres; located $\frac{3}{4}$ mile from Fort Plain P. O. and railway station, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school. Surface of farm, rolling. Soil, clay loam. Acres in

* Indicates farm is in hands of agent or real estate dealer.

meadow, 7. All tillable. Fruit, 40 apple, 2 pear, 6 plum and 2 cherry trees, also currants and grapes. Fences, mostly wire, good condition. House, 2 stories, 7 rooms, good condition. Outbuildings, barn, 36x60; wagon house; corn crib; milk house; ice house; wood shed and hen house. Watered by well. Occupied by owner. Price, \$6,000. Terms, \$4,000 cash, balance on mortgage. Address H. L. Reed, agent, Amsterdam, N. Y.

TOWN OF MOHAWK

Population 2,488

No. 580 — Farm of 120 acres; located 4 miles from Fonda P. O., R. D. No. 1; 1 mile from railway station at Yost, on line of N. Y. C. R. R.; 100 yards from school; 4 miles from Catholic and Protestant churches; 5 miles from milk station and milk condensing plant. Highways, good. Surface of farm, rolling. Soil, gravel loam. Acres in meadow, about 40; in natural pasture, about 35; in timber, 3, pine, hemlock, etc. Acres tillable, 100. Fruit, good orchard. Adapted to any crops grown in this climate. Fences, stone wall, wire and post. House, large. Outbuildings, barn, 35x65; shed, 30x50; barn, 28x40;

barn, 30x34 and other necessary buildings. Watered by springs. Occupied by tenant. Reason for selling, owner a widow. Price, \$8,000. Terms easy. Address Mrs. R. A. Schuyler, Fonda, N. Y.

TOWN OF PALATINE

Population 2,517

* No. 581 — Farm of 16 acres; located 2 miles from Palatine Bridge P. O.; 2 miles from railway station at Canajoharie, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Catholic and Protestant churches. Soil, yellow, black loam. Acres in meadow, 10; in timber, 16, white and black oak, maple, beech, hickory, ash, basswood, pine and hemlock. Fruit, 10 apple, 2 pear and 5 cherry trees. Fences in good condition. House, $1\frac{1}{2}$ stories, 7 rooms. Outbuildings: barn, 30x45; wagon house, 18x22; poultry house, 22x68; poultry house, 13x13; hog house, 10x12. Watered by drilled well. Occupied by owner. Reason for selling, owner has other business. Price, \$5,000. Terms, \$2,000 cash, balance on bond and mortgage at 5%, mortgage must be reduced \$250 or more each year. Address H. L. Reed, agent, Amsterdam, N. Y.

NIAGARA COUNTY

Area, 504 square miles. Population, 92,036. Annual precipitation, 29.6 inches. Annual mean temperature, 48.6°. Number of farms, 4,346. County seat, Lockport.

This county is located in the western part of the state, bordering on Canada, separated by the Niagara River and the famous Niagara Falls. Its northern boundary is Lake Ontario.

The surface features of the northern part of the county are quite level, but in the southern and eastern portions are found gentle undulations; more than one-half of the surface, however, is level. A rich, sandy and gravelly loam is found on a strip of land extending from the lake to the interior of the county about ten miles in width. A strong clay loam, very productive, is found in the southern portions of the county. Niagara limestone is extensively quarried in some sections. The county is adapted to all forms of agriculture. It is especially noted as being one of the greatest counties of the country in the production of apples, pears, peaches, quinces, etc., producing these in enormous quantities from orchards kept in the highest state of cultivation. In crops there were produced 728,478 bushels of corn; 996,239 bushels of oats; 577,082 bushels of wheat; 32,237 bushels of barley; 73,273 bushels of dry beans; 663,192 bushels of potatoes, and 82,448 tons of hay and forage. The total value of farm property is \$39,665,809, an increase of 69 per cent. over the census of 1900. This increase is exceeded by only one agricultural county in the state. The average value of improved lands, including buildings, is \$111.12 per acre and the average value of farm land per acre is \$74.85, an increase of \$29.15 per acre in the last decade. The county reports dairy cows, 13,658; horses, 15,510; swine, 17,502; sheep, 28,241; poultry, 261,290; product of milk, 6,098,086 gallons, amounting to \$448,356. Buffalo with its nearly a half million inhabitants only twenty-five miles from the center of the county furnishes ample market for products. The county is traversed by the Erie Canal and several important railroads and electric lines. The city of Niagara Falls contains many large manufacturing establishments

* Indicates farm is in hands of agent or real estate dealer.

and hotels, which during the summer months are filled with tourists. Lockport contains six flour mills and numerous saw mills. There are 155 district schools in the county, which with the many high schools, De Veaux College and Niagara University furnish exceptional educational advantages for the students. Eight agricultural organizations are devoted to the best interests of the farmer. The county has 62 miles of state and county roads and 387 miles of improved highways. The county ranks third in the production of wheat and fourth in corn.

TOWN OF HARTLAND

Population 2,638

* No. 582 — Farm of 24 acres, $3\frac{1}{2}$ miles from Middleport P. O. and railway station on the N. Y. C. & H. R. R.; R. D. 38 from Middleport; 9 miles from Medina, 5,000 inhabitants; 14 miles from Lockport, 18,000 inhabitants. Highways, good gravel and sand road. Soil, sandy loam, 3 acres underdrained. Acres meadow, 4; all tillable; all could be made pasture. Fruit, 125 apple trees, 200 peach trees, pears, cherries and quinces. Soil adapted to wheat, oats, corn, clover and potatoes and truck farming generally. Occupied by owner. No fences. House, good size and condition. Barn, 30x40; shed, 16x42; hen house, corn house, wagon house. House, barn and fields watered by wells. Price, \$7,200. Terms, easy. Name and address of owner, Lena F. Clark, Middleport, N. Y. There is a 20-acre field that can be had in connection with this place with 5 acres of apple orchard and 300 peach trees, the price of which is \$3,000.

* No. 583 — Farm of 100 acres; 5 miles from Middleport P. O. and railway station, on line of N. Y. C. & H. R. R. and B. L. & R. R. R.; $\frac{1}{4}$ mile from school; 1 mile from churches. Highways, good. Nearest village, Middleport, population, 1,530, 5 miles distant, reached by highway. Surface of farm, level. Soil, sandy loam. Acres in meadow, 5; in natural pasture, 5. Acres tillable, 195. All kinds of small fruit. Adapted to all kinds of crops. Fences, wire. House, 30x30, 10 rooms. Outbuildings: basement barn, 30x46, new; old barn, 30x40; hog pen, 2 hen houses, dry house. Watered, house by drilled well, barns by well, fields by creek. Occupied by owner. Reason for selling, ill health. Price, \$12,500. Terms, \$3,000 cash, balance on mortgage at 5%. Address Floyd H. Stafford, agent, Medina, N. Y.

* No. 584 — Farm of 15 acres; 3 miles from Middleport P. O. and railway station, on line of N. Y. C. & H. R. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches. Highways, good, mostly State road. Nearest large village, Medina, population 5,683, 3 miles distant. Surface of farm, level. Soil, sandy loam. Acres tillable, 15. Fruit, 10 acres, apples, pears, peaches and prunes. Best adapted for fruit. Fences, none. House, 8 rooms, in good condition. Barn, 20x30. Watered, house by well, barns by well. Reason for selling, desires a larger farm. Price, \$3,500. Terms, \$1,000 cash, balance on mortgage. Address F. H. Stafford, agent, Medina, N. Y.

TOWN OF PORTER

Population 2,655.

No. 585 — Farm of 80 acres; $2\frac{1}{2}$ miles from Ransomville P. O. and railway station, on R. W. & O. R. R. Soil, rich clay, loam. All tillable. Fruit, 600 apple trees and 300 pear trees; 300 peach trees set this spring, covering 5 acres. Soil adapted to general farming and fruit raising. Price, \$85 per acre. Terms on application. Name and address of owner, E. T. Ransom, Ransomville, N. Y.

* No. 586 — Farm of 96 acres; $3\frac{1}{2}$ miles from Ransomville P. O., R. D. 24, and railway station, on line of R. W. & O.; $\frac{3}{4}$ mile from school; $3\frac{1}{2}$ miles from churches and milk station. Highways, good. Nearest large village, Ransomville, population about 700. Surface, level. Soil, gravelly loam. Acres in timber, 8. beech, maple; acres tillable, 88. Fruit, 2 acres of pear trees, 14 acres of apple trees. Farm is on shore of Lake Ontario. Fences, fair. House, 9 rooms, fair condition. New barn. Watered by wells. Occupied by tenant. Reason for selling, owner non-resident. Price on application. Address H. Sanford, agent, Wilson, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

ONEIDA COUNTY

Area, 1,196 square miles. Population, 154,157. Annual precipitation, 44 inches. Annual mean temperature, 47.9°. Number of farms, 6,929. County seat, Utica.

This county is centrally located and is bounded on the southwest by Oneida Creek and Oneida Lake. It is drained by the Mohawk and Black Rivers and by Oriskany, Fish and West Canada Creeks. In the region around and extending east of Oneida Lake the surface is level. The hills of the northern part are formed in long, broad ridges, elevation from 200 to 600 feet. The soil in this section is a sandy and gravelly loam, very productive. In the low hills near the valley clay loam is found, while on the higher elevations of the northeastern part gravelly loam predominates. Among the leading minerals of the county are gypsum, iron ore and hydraulic limestone. Oneida is one of the leading farm counties of the state, some of the principal crops being corn, 402,688 bushels; oats, 721,449 bushels; barley, 25,105 bushels; buckwheat, 54,411 bushels; potatoes, 1,192,575 bushels; hops, 1,804,878 pounds; hay and forage, 321,802 tons. The total value of farm property is \$38,437,991, an increase of 44.1 per cent. over the value of 1900. The average price of improved land throughout the county is \$42.81. The county reports 64,779 dairy cows; 16,652 horses; 18,661 swine; 6,510 sheep; 276,642 poultry. There are also reported about 35,000 head of cattle, exclusive of dairy cows. There were produced 35,045,439 gallons of milk and the total receipts from all dairy products was \$3,401,563. There are 169 milk stations distributed over the county. Oneida county is intersected by the Erie and Black River Canals and by the New York Central & Hudson River; Delaware, Lackawanna & Western; Rome, Watertown & Ogdensburg, and West Shore railroads, all of which center at Utica. The cities of Utica and Rome furnish ample markets; and New York City is a ready market for all export products. There are 358 district schools and at Clinton is located Hamilton College, a well-known institution of high character. There are 125 miles of state and county roads and 2,100 of improved highways; also 22 agricultural societies to assist the farmer with his work. The county ranks third in hops, third in the production of hay and forage and third in the production of milk.

TOWN OF ANNSVILLE

Population 1,449

No. 587 — Farm of 120 acres; 8 miles from Camden P. O., R. D., and railway station, on line of N. Y. C. & H. R. R. R.; 1½ miles from school; 2½ miles from Methodist church; 1½ miles to cheese factory and 6 miles to sweet corn factory. Highways, fair. Nearest village, Camden, population 2,170, 8 miles distant, reached by highway. Surface of farm, rolling. Altitude, 90 feet. Soil, gravelly loam. Acres in meadow, 25; in natural pasture, 25; in timber, 70, hemlock, spruce, ash, beech, maple and birch. Acres tillable, 45. Fruit, 24 apple trees, 8 plum trees. Best adapted to potatoes, corn, oats and buckwheat. Fences, wire and stone, in fair condition. House, 22x28, needs some repairs, with wing, 16x16, unfinished, and wood shed, 16x18. Outbuildings: basement barn, 30x40; hog pen, 15x25; corn house, 12x20; hen house, 12x16, fair condition. Watered, house by springs, barns and fields by springs. This farm is 17 miles from Oneida Lake and 20 miles from

Sylvan beach, a celebrated summer resort. Occupied by owner. Reason for selling, ill health. Price, \$2,500. Terms on application. Address M. L. Stanford, Camden, R. F. D. No. 5, N. Y.

* No. 588 — Farm of 60 acres; 2½ miles from Point Rock P. O., R. D.; 10 miles from railway station at Blossvale. Loam soil. Acres, pasture, 20; in timber, 40. No buildings. Watered by spring brook. New railroad being built; station will be 2 miles distant. Trout fishing. Price, \$200. Terms, cash. Address Charles Worden, agent, Taberg, N. Y.

* No. 589 — Farm of 208 acres; located 8 miles from railway station at Camden; 3 miles from Point Rock P. O., R. D. Highways, good. Soil, gravel loam. Acres in meadow, 60; in natural pasture, 88; in timber, 60. House, 1½ stories, 7 rooms, needs some repairs. Outbuildings, basement barn, 30x40; barn, 30x40; hen house and hog pen. Watered by well and brook. Wire fence

* Indicates farm is in hands of agent or real estate dealer.

around pasture. Price, \$1,400. Terms, \$900 cash, balance in yearly payments of \$100 with interest at 5%. Address Chas. Worden, agent, Taberg, N. Y.

TOWN OF BRIDGEWATER
Population 832

No. 590 — Farm of 236 acres; located $2\frac{1}{2}$ miles from Bridgewater P. O. and railway station, on line of D., L. & W. and U. & V. Rys.; $\frac{1}{2}$ mile from school and cheese factory; $2\frac{1}{2}$ miles from churches and milk station; 6 miles from milk condensing plant. Highways somewhat hilly. Nearest large village, Waterville, 6 miles distant, population about 1,000, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,750 feet. Soil, clay and dark loam. Acres in meadow, 70; in natural pasture, 80; in timber, 17, beech, maple, hemlock, basswood and ash. Acres tillable, 200. Fruit, 50 grafted fruit trees. Best adapted to corn, oats, hops, potatoes, barley, beans, etc. Fences, barbed wire, good. House, 2 stories, upright and wing. Outbuildings: barn, 30x104, on a basement of wood and stone, fair condition. Watered, house by well, barn by running water in tub, fields by springs. Occupied by tenant. Reason for selling, ill health of owner. Price, \$3,000. Terms, \$1,000 down, balance on bond and mortgage. Address A. C. Sisson, Brookfield, N. Y. Owner will rent.

TOWN OF CAMDEN
Population 3,426

No. 591 — Farm of 290 acres; $2\frac{1}{2}$ miles from Camden station, on line of R., W. & O. branch of N. Y. C. R. R.; also L. V. R. R.; 1 mile from State road as surveyed in 1911. Well adapted to dairying and fruit raising. Apple orchard, 100 trees. Large quantity of timber. One house, 10 rooms, in good condition. Numerous barns and outbuildings, sufficient for farm, in fair condition. Well watered and fairly fenced. This farm will keep 50 head of stock. Price, \$2,500. Terms easy. Address R. M. Rush, Camden, N. Y.

No. 592 — Farm of 105 acres; located $1\frac{1}{2}$ miles from Camden P. O., R. D. 4, and railway station, on line of N. Y. C. & H. R. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from several Protestant and Catholic churches; $1\frac{1}{2}$ miles from butter factory and milk station; $\frac{1}{2}$ mile from cheese factory. Highways, very good.

Nearest city, Rome, population 18,000, distant 18 miles by rail and highway. Surface, rolling. Altitude, about 400 feet. Soil, gravel and clay. 20 acres of meadow; 45 acres of natural pasture; 30 acres of timber, beech, birch and maple; 50 acres are tillable. 2 apple orchards, besides other small fruits. Can raise corn, potatoes and clover. Fences, of wire, board and stone, in good condition. 2 houses, 1 of 12 rooms and 1 of 6 rooms, in good condition. 4 barns, 1 30x40, with basement stable and cement floor; horse barn and carriage house, 26x40; barn, 24x30; 1 20x26; also granary with cement floor; all in good condition. House has well water; barns, well water; fields have springs and brook. The Adirondack Mountains are on the north and Oneida Lake, 12 miles distant, south. This farm is situated on the direct highway leading from Camden to Rome and Utica. Occupied by owner. Reason for selling, owner has other business to attend to. Price, \$4,000. Terms, one-half cash, and balance on mortgage. Address E. Bernard Miller, R. D. 4, Camden, Oneida Co., N. Y.

No. 593 — Farm of 100 acres; $2\frac{1}{2}$ miles from Camden P. O., R. D. 4, and station, on line of N. Y. C. & H. R. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from Methodist, Presbyterian, Congregational, Episcopal and Catholic churches; $2\frac{1}{2}$ miles from butter factory; 1 mile from cheese factory; $2\frac{1}{2}$ miles from milk station. Highways, good. Nearest village, Camden, population 2,800; $2\frac{1}{2}$ miles distant by highway. Surface, rolling. Altitude, about 600 feet. Soil, loam; 40 acres of meadow; 40 acres in natural pasture; 20 acres in timber, mostly hard; 80 acres tillable; 4 pear trees, 6 cherry, 2 plum, 200 apple and 12 butternut. Land is adapted to raising apples, corn, oats, hay and potatoes. Some stone walls and board and wire fences, in fair condition. House, nearly new, main portion, 24x26; wing, 16x22, containing 10 rooms, woodshed attached. Cow barn, nearly new, 30x70, with basement; silo and manure carrier, shed attached, 12x40; horse barn, 40x16, in fair condition. House and barns have running water piped from spring and well, and fields have plenty of springs, with brook running across corner of pasture. Has trout stream, Cob Brook, 40 rods distant. Farm occupied by owner. Reason for selling, poor health. Price, \$3,500. Terms, \$1,000 down, balance on

mortgage, payable \$100 annually, with interest. Would take a small place of 25 to 30 acres as part payment. Address Franklin Skinner, Camden, N. Y., R. D. 5.

TOWN OF DEERFIELD

Population 1,660

No. 594 — Farm of 157 acres, 1 mile from North Gage P. O.; $2\frac{1}{2}$ miles from Barneveld station, R. D. from Barneveld; 10 miles from Utica. Soil, clay loam, slate and limestone. Acres in meadow, 55; acres in pasture, 80; acres timber, 20; 2 acres in orchard and yard. Medium-sized house, 32x25, 2 wings and woodshed, in first-class condition; 2 barns, 1, 90x40, cement floor, watering basins; also silo, horse barn, 54x32, and outbuildings, in good repair. Watered by brooks, spring and 2 wells. Fences, post and wire, in good condition. A dairy of pure-bred and grade Holstein cows now on the farm will also be offered for sale, when the farm is sold. A macadamized country road leading north from Utica, N. Y., is near the farm. Reason for selling, advanced age of owner. Price, \$12,000. Terms, two-thirds cash, balance in 5 years, on mortgage. Liberal discount for cash. Address John K. Walker, Holland Patent, N. Y.

No. 595 — Farm of 150 acres; located $1\frac{1}{2}$ miles from Deerfield P. O., R. D. 2; $2\frac{1}{2}$ miles from railway station at Utica, on line of N. Y. C. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from Catholic and Protestant churches. Highways, good but somewhat hilly. Surface of farm, level, rolling and hilly. Soil, gravel and sand. Acres in meadow, 50; in natural pasture, 35; in timber, 15, beech, birch and hemlock. Acres tillable, 50. Fruit, plums, apples, pears and grapes. Best adapted to potatoes, corn and garden truck. Fences, wire and post, good condition. House, large, 20x40, good condition. Outbuildings: barn, 60x40, basement; silo; barn, 35x32; horse barn, 18x30; shed, 15x18; chicken house; tool house and several small buildings. Watered, house, by well and cistern; barns and fields, by springs. Occupied by tenant. Reason for selling, owner a widow. For price and terms address Mrs. Geo. Crossman, 31 Linwood Place, Utica, N. Y.

TOWN OF FORESTPORT

Population 1,100

No. 596 — Farm of 130 acres; situated $2\frac{1}{2}$ miles from Forestport P. O.; $2\frac{1}{2}$ miles from railway station on M. & M. R. R.; R. D. 1 from Forestport. Highways, good. Soil, sandy. Acres in meadow, 40; tillable, 70; natural pasture, 20; timber, 40, second growth. Fruit, 6 apple trees. Best adapted to corn, oats and potatoes. Fences, wire, fairly good. House, $1\frac{1}{2}$ stories, in good condition. Barn, 30x80, fairly good. Watered by well and stream. Reason for selling, ill health of owner. Price, \$2,000; terms, half down. Address Andrew J. Lockwood, Forestport, N. Y., box 57, route 1.

*No. 597 — Farm of 96 acres; located 1 mile from Forestport R. R. station and 3 miles from Alder Creek station on line of M. & M. R. R., and R., W. & O. R. R. Highways, good. Farm is 30 miles north of Utica, which has a population of about 75,000. Occupied by tenant. Surface, level. Soil, sandy loam. Acres in pasture, about 80; timber, 16, small spruce, poplar, etc. Best adapted to potatoes, corn, oats, buckwheat and berries. Fences, wire. Gulf brook runs through farm, good fishing; dam could easily be constructed. Good hunting for deer and partridges in vicinity. Reason for selling, owner living elsewhere. Price, \$500. Terms, cash. Address Jas. G. Jones, agent, Forestport, N. Y.

No. 598 — Farm of 250 acres; $2\frac{1}{2}$ miles from Forestport P. O., R. D. 1; 2 miles from railway station at Forestport, on line of M. & M. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from Methodist, Catholic, Presbyterian and Episcopal churches; 3 miles from cheese factory. Highways, good. Nearest city, Utica, population, 75,000, 30 miles distant, reached by rail. Surface of farm, level. Altitude, 1,250 feet. Soil, sandy loam. Acres in meadow, 200; in natural pasture, 50; acres tillable, 250. Best adapted to oats, potatoes, hay. House, 5 rooms, in fair condition; 2 barns, 36x40. Watered, house, by well; fields, by creek; $\frac{1}{4}$ mile to Little Woodhull River. Reason for selling, owner has other business. Price, \$2,500. Terms, part cash. Address James G. Jones, Forestport, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

*No. 599 — Farm of 40 acres; located 2½ miles from Forestport P. O., R. D. 1; 2 miles from railway station at Forestport, on line of M. & M. R. R.; 1 mile from school; 2½ miles from Methodist, Presbyterian, Catholic and Episcopal churches; 4 miles from milk station. Good country roads. Nearest city, Utica, population, 75,000, 30 miles distant, reached by M. & M. R. R. or R., W. & O. R. R. Surface of farm, rolling. Altitude, 1,250 feet. Soil, sandy loam. Acres in meadow, 10; in natural pasture, 30; acres tillable, 20. Best adapted to oats, hay, potatoes and buckwheat. Fences, wire. Good fishing and hunting. Reason for selling, owner does not live in this section of State. Price, \$150. Terms, cash. Address James Jones, Forestport, N. Y., or S. W. Ferguson, Worcester, N. Y.

*No. 600 — Farm of 27 acres; 4 miles from Forestport P. O., R. D.; 3 miles from railway station at Forestport on line of M. & M. R. R.; 1 mile from school; 4 miles from Methodist, Presbyterian, Episcopal and Catholic churches; 6 miles from cheese factory. Highways, good. Nearest village, Forestport, population 507, 4 miles distant, reached by highway. Surface of farm, level. Altitude, 1,100 feet. Soil, sandy loam. Acres in meadow, 10; in natural pasture, 17. Acres tillable, 27. Best adapted to hay, oats, potatoes and buckwheat. House 20x24. Watered, house by spring. This farm is 1½ miles from Black River and 1 mile to Lindsey Lake. Reason for selling, owner has other business. Price, \$125. Terms, cash. Address James G. Jones, agent, Forestport, N. Y.

*No. 601 — Farm of 200 acres; 3 miles from Forestport P. O., R. D.; 1½ miles from Forestport railway station on line of M. & M. R. R.; ½ mile from school; 3 miles from Methodist, Presbyterian, Episcopal and Catholic churches; 4 miles from cheese factory and milk station. Highways, nearly level. Nearest village Forestport, population 507, 3 miles distant, reached by highway. Surface of farm, rough. Altitude, 1,100 feet. Soil, gravel loam. Acres in meadow, 50; in natural pasture, 75; in timber, 75. second growth. Best adapted to hay, oats, potatoes, etc.

Fences, wire, good condition. House, 4 rooms, in good condition. Barn 40x50, hen house 10x12. Watered: house by well, barns by well, fields by creeks. This farm is 1 mile from Lindsey Lake. Occupied by owner. Reason for selling, owner not a farmer. Price, \$1,000. Terms, part cash, balance \$50 per year. Nearly timber enough on this farm to pay for it. Address James G. Jones, Agent, Forestport, N. Y.

*No. 602 — Farm of 300 acres; 2 miles from Forestport P. O., R. D. 1; 1 mile from railway station at Forestport on line of M. & M. R. R.; ½ mile from school; 2 miles from Methodist, Presbyterian, Episcopal and Catholic churches; 4 miles from cheese factory and milk station. Highways, good. Nearest village Forestport, population 507, 2 miles distant, reached by highway. Surface of farm, level. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 150; in timber, 100, second growth. Acres tillable, 100. Best adapted to oats, potatoes, buckwheat, etc. Fences, wire, in good condition. House, 4 rooms, in good condition. Barn 40x40, hen house 16x20. Watered: house by well, barns by well, fields by creek. Occupied by owner. Reason for selling, has other business. Price, \$3,000. Terms, \$1,000 cash, balance \$200 per year. Address James G. Jones, agent, Forestport, N. Y.

*No. 603 — Farm of 100 acres, located 2½ miles from Forestport P. O., R. D. 1, and railway station, on line of M. & M. R. R.; ½ mile from school; 3½ miles from Catholic and Protestant churches; 5½ miles from milk station and cheese factory. Highways, good. Surface of farm, rolling. Altitude, 1,200 ft. Soil, gravel loam. Acres in meadow, 75; in natural pasture, 25; in timber, 5, second growth. Acres tillable, 75. Best adapted to oats, potatoes and hay. Fences, wire, good condition. House 30x30 with wing 20x24, good condition. Outbuildings, barn 30x40, hen house and hog pen. Watered by well and spring. This farm is ½ mile from Lindsey Lake. Reason for selling, owner has other business. Price, \$1,200. Terms, part cash, balance in yearly payments of \$100. Address Jas. Jones, agent, Forestport, N. Y. Owner will rent.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 136.—BUILDINGS ON FARM NO. 628, TOWN OF VERONA, ONEIDA COUNTY.

*No. 604—Farm of 44 acres; located 3 miles from Forestport P. O., R. D. 1, and railway station, on line of M. & M. R. R.; 1/16 mile from school; 3 miles from Catholic and Protestant churches; 5 miles from cheese factory and milk station. Highways, good. Surface of farm, level. Altitude, 1,200 ft. Soil, gravel loam. Acres in meadow, 10; in natural pasture, 24; in timber, 10, second growth. Acres tillable, 34. Best adapted to oats, potatoes and hay. Fences, wire, fair condition. House 20x26, fair condition. Outbuildings, barn 30x40, fair condition. Watered by well and creek. Occupied by owner. Reason for selling, wants to go to city. Price, \$500. Terms, part cash, balance in yearly payments of \$50. Address James G. Jones, agent, Forestport, N. Y.

*No. 605—Farm of 200 acres; located 3 1/2 miles from Forestport P. O., R. D. 1; 2 1/2 miles from railway station at Forestport, on line of M. & M. R. R.; 1/2 mile from school; 3 1/2 miles from Catholic and Protestant churches; 5 1/2 miles from cheese factory and milk condensing plant. Highways, good. Surface of farm, level. Altitude, 1,200 ft. Soil, gravel loam. Acres in meadow, 75; in natural pasture, 75; in timber, 50, second growth. Acres tillable, 70. Best adapted to oats, potatoes and hay. Fences, wire, fair condition. House 20x25, fair condition. Outbuildings, barn 40x60, fair condition. Watered by well and creek. Occupied by owner. Reason for selling, owner in other business. Price, \$1,200. Terms, part cash, balance in yearly payments of \$100. Address Jas. G. Jones, agent, Forestport, N. Y.

No. 606—Farm of 25 acres; located 2 miles from Forestport P. O., R. D. 1; 1 mile from railway station at Forestport, on line of Mohawk and Malone R. R.; 3/4 mile from school; from 1 to 2 miles to Protestant and Catholic churches; 4 miles from cheese factory; 5 miles from milk station. Highways, part State road, balance good dirt road. Nearest large village, Boonville, 8 1/2 miles distant. Surface of farm, level. Altitude, 1,200 ft. Soil, sandy. Acres in meadow, 20; in timber, 4, second growth. Acres tillable, 20. Best adapted to oats, potatoes and vegetables.

Fences, wire, fair condition. New house 16x22. Outbuildings: new barn 22x30; barn 16x22; barn 12x20. Watered by well and springs. Occupied by tenant. Reason for selling, owner in other business. Price, \$800. Terms, one-half cash, balance to suit purchaser. Address Laura A. Kilborn, Forestport, N. Y.

TOWN OF KIRKLAND

Population 4,333

*No. 607—Farm of 135 acres; located 3 miles from Clinton P. O., R. D. and railway station, on line of O. & W. R. R.; 1/2 mile from school; 3 miles from churches and milk station; 5 miles from milk condensing plant. Highways, good. Nearest city, Utica, 9 miles distant, population 75,000, reached by railroad, trolley and highway. Surface of farm, level. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 20; in timber, 20, maple, beech, hemlock and basswood. Acres tillable, 100. Fruit, 110 apple trees, also pears, plums, cherries, grapes and currants. Best adapted to corn, potatoes and grain. Fences, barbed wire, fair condition. House, 10 rooms, fair condition. Outbuildings: barn, 90x30, with wing, 30x40; hog house; granary and hop house. Watered by running spring and creek. Reason for selling, owner has too much land. Price, \$6,500. Terms, \$2,000 cash, balance on bond and mortgage at 5%. Address W. H. Brockway, agent, Clinton, N. Y.

*No. 608—Farm of 150 acres; located 5 miles from Clinton P. O., R. D. 1 and railway station, on line of O. & W. R. R.; 1/2 mile from school; 2 miles from churches and butter factory; 5 miles from milk station; 7 miles from milk condensing plant. Highways, somewhat hilly, but good. Nearest city, Utica, 9 miles distant, population 75,000, reached by highway. Surface of farm, 100 acres level, balance rolling. Soil, gravelly loam. Acres in natural pasture, 30; in timber, 20, maple, beech, hemlock and basswood. Acres tillable, 100. Fruit, 50 apple trees, 5 pear trees and enough cherries and small fruits for family use. Best adapted to hay, oats, barley, corn and potatoes. Fences, barbed wire, fair condition. House, 10 rooms; woodshed. Outbuildings: barn, 70x30, with basement; hop house and hog pen, 40x50;

* Indicates farm is in hands of agent or real estate dealer.

silo, 20x30; all in good condition. Watered, house, by well and cistern; barns, by running spring water; fields, by springs and small brook. Occupied by tenant. Reason for selling, ill health of owner. Price, \$6,500. Terms, \$3,000 cash, balance on bond and mortgage at 5%. Address W. H. Brockway, agent, Clinton, N. Y.

*No. 609—Farm of 18 acres; 4 miles from Clinton P. O., R. D., and railway station on line of N. Y., O. & W. R. R.; $\frac{1}{2}$ mile from school; 4 miles from churches; $\frac{1}{4}$ miles from milk station; 5 miles from condensing plant. Highways, good, hilly. Nearest large village, Clinton, population 1,236, 4 miles distant by highway. Surface of farm, level. Altitude, 1,300 feet. Soil, gravel loam. Acres in meadow, 10; in natural pasture, 4. Acres tillable, 18. Fruit, 50 apple trees and plums, pears and grapes for family use. Best adapted to hay, oats, barley, potatoes, corn, etc. House, 3 rooms, good condition. Barns, large barn and hen house all in good condition. Watered: house by well, barns by well, fields by springs. Occupied by owner. Reason for selling, owner has other farms. Price, \$2,000. Terms, \$1,000 cash, balance on mortgage at 5%. Address W. H. Brockway, agent, Clinton, N. Y.

*No. 610—Farm of 73 acres; 2 miles from Deansboro P. O., R. D., and railway station on line of N. Y., O. & W. R. R.; 1 mile from school; 2 miles from churches; 2 miles from milk station and condensing plant. Highways, good. Nearest city, Utica, population 74,419, 15 miles distant, reached by rail or highway. Surface of farm, level and rolling. Altitude, 900 feet. Soil, gravel. Acres in meadow, 15; in alfalfa, 12; in natural pasture, 20; in timber, 12, hemlock, basswood and hard wood. Acres tillable, 50. Fruit, plenty of apples, pears, plums, grapes and berries for own use. Best adapted to alfalfa, corn and grain. Fences, barbed wire, in good condition. Outbuildings: basement barn with concrete stable for 20 head cattle; silo 16x28; milk house; hen house and hop house, all in good condition. Watered: house by well, barns by running water, fields by brook and springs. Oc-

cupied by owner. Reason for selling, owner wishes to retire. Price, \$7,000. Terms, \$3,000 cash, balance on mortgage. Address W. H. Brockway, agent, Clinton, N. Y.

*No. 610 $\frac{1}{2}$ —Farm of 80 acres; $2\frac{1}{2}$ miles from Clinton P. O., R. D., and railway station on line of N. Y., O. & W. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches; $2\frac{1}{2}$ miles from milk station; 4 miles from condensing plant. Highways, good, part State road. Nearest city, Utica, population 74,419, 10 $\frac{1}{2}$ miles distant, reached by rail or highway. Surface of farm, 40 acres level, balance hilly and rolling. Altitude, 900 feet. Soil, clay loam. Acres in meadow, 12; in alfalfa, 8; in natural pasture, 15; in timber, 20, hemlock, basswood and maple. Acres tillable, 45. Fruit, 50 apple trees, pears, plums, grapes and raspberries. Best adapted to alfalfa, corn, potatoes, grain, etc. Fences, good barbed wire. House, 9 rooms, heated with a furnace, large piazza. Barn, large with inside silo, hen house. Watered: house and barn by wells, fields by springs and brook. Occupied by owner. Reason for selling, ill health. Price, \$3,750. Terms, \$1,750 cash, balance on mortgage. Address W. H. Brockway, agent, Clinton, N. Y.

TOWN OF LEE

Population 1,379

No. 611—Farm of 140 acres; $1\frac{1}{2}$ miles from post office; a new railroad close to farm, depot $1\frac{1}{2}$ miles from farm; large new canning factory $1\frac{1}{2}$ miles from farm. Soil, gravel, good. Acres in meadow, 40; pasture, 40; timber, 20, 40 acres under plow. House, 10 rooms, in good repair. Large barn, 30x60; also horse barn. 2 apple orchards, bearing. Watered by spring. Fences, woven wire. Price, \$3,500. Terms, \$2,000 down, balance on time. Address Wm. M. Kenyon, Taberg, N. Y., R. D. 1. Owner will rent on shares.

TOWN OF MARCY

Population 1,301

No. 612—Farm of 112 $\frac{1}{2}$ acres; located 3 miles from Marcy P. O., R. D. 2, and railway station, on line of Black River R. R.; $\frac{3}{4}$ mile from school; 1 mile

* Indicates farm is in hands of agent or real estate dealer.

from Protestant church; 4 miles from butter factory and milk condensing plant; $2\frac{1}{2}$ miles from cheese factory; 3 miles from milk station. Highways somewhat hilly but good. Nearest city, Utica, 6 miles distant, population about 75,000, reached by highway. Surface of farm, part hilly and part level. Good soil. Acres in meadow, 56; in natural pasture, 50; in timber, 6, beech, birch, maple, ash, elm, hemlock. Acres tillable, 56. Fruit, about 50 apple trees, also pears, plums, cherries, grapes and currants. Best adapted to hay, corn, oats, potatoes, etc. Fences, wire, fair condition. House, 8 rooms, old but in good condition, wood shed attached. Outbuildings: barn, 26x40; barn, 30x54, shed attached; store house, 18x24, with building, 20x24 annexed, in need of repairs. Watered, house, by wells; barns, by creek; fields, by creek and springs. Occupied by owner and tenant. Reason for selling, owner cannot attend to farm. Price, \$4,000. Terms, cash or part cash, balance on first mortgage. Address Mrs. Margaret J. Jones, Marcy, N. Y., R. D. 2, care of B. F. Jones.

TOWN OF NEW HARTFORD

Population 5,947

No. 613—Farm of 160 acres, located $1\frac{1}{2}$ miles from Sauquoit P. O., R. D. 1, and railway station, on line of D. L. & W. R. R.; 1 mile from school and Protestant church, $1\frac{1}{2}$ miles from butter factory and milk station; 2 miles from cheese factory and 8 miles from milk condensing plant. Highways good. Nearest city, Utica, 5 miles distant, population 75,000, reached by rail. Surface of farm, rolling. Altitude about 1,000 ft. Soil, sandy loam. Acres in meadow, 40; in natural pasture, 20; in timber, 15, maple, beech and hemlock. Acres tillable, 130. Fruit, 100 apple and 12 pear trees. Best adapted to corn, wheat, potatoes and hops. Fences, wire, good condition. House, 14 rooms, good condition. Outbuildings: 2 basement barns, 50x100 and 50x80; barn, 20x50; hog pen; shed; tool house and double hop house; all in good condition. Watered, house, by well; barns and fields, by running water. Occupied by tenant. Reason for selling, to settle an estate. Price, \$20,000. Terms, \$8,000 cash, balance on mortgage. Address Mary J. Philo, Washington Mills, N. Y.

TOWN OF PARIS

Population 2,660

No. 614—Farm of 200 acres; 10 rods from post office; 100 rods from railway station, on line of D. L. & W. R. R.; 20 rods from school; 15 rods from church; 1 mile from milk station; 8 miles from milk condensing plant. Highways, State road. Surface of farm, level and rolling. Altitude, about 1,200 feet. Soil, gravelly and sandy loam. Acres in meadow, 40; in natural pasture, 10; in timber, 1; acres tillable, 190. Fruit, three acres in apples. Best adapted to hops, potatoes, dairying, etc. Fences, wire, good. House $2\frac{1}{2}$ stories, 16 rooms, bath and toilet on 2 floors, laundry, running spring water, hot and cold water, all city improvement. Outbuildings, in perfect repair, capacity for 75 head of cattle. Watered by never-failing springs. This farm is 100 rods from Sauquoit Creek. This property is 12 miles from city of Utica on State road. 3 tenant houses. Large house was remodeled 5 years ago at cost of \$4,500. Occupied by owner. Reason for selling, failing health and advanced age of owner. Price, \$20,000. Terms, $\frac{1}{2}$ cash. Address J. W. Risley, Cassville, N. Y.

TOWN OF ROME

Population 20,497

No. 616—Farm of 210 acres; located 4 miles from Verone P. O., R. D. 2, 1 mile from railway station at Greenway, on line of N. Y. C. R. R., $\frac{3}{4}$ mile from school, 3 miles from butter factory, cheese factory, milk condensing plant, Catholic and Protestant churches; 1 mile from milk station. Highways, State road except $\frac{1}{2}$ mile. Nearest city, Rome, 3 miles distant, reached by highway. Surface of farm, just sloping enough for drainage. Altitude, 470 feet. Soil, Dunkirk gravelly loam. Acres in meadow, 100; in natural pasture, 70; in timber, 40, maple, elm, cedar, hemlock, etc. Acres tillable, 170. Fruit, apples, plums and currants. Best adapted to corn, wheat, oats, barley, peas, alfalfa, timothy and hay. Fences, mostly woven wire, with cedar posts, some barbed wire and cedar rails, first-class condition. House, 40x50, with wing, 20x40, brick, 16 rooms, first-class condition. House, 40x50, with wing, 20x40, brick, 16 rooms, first-class condition. Outbuildings: horse barn, 34x40, brick; barn, 40x70,

with stone basement; barn, 20x45, with stone basement; 2 other large barns and tenant house, 8 rooms. Watered by well and running water. Occupied by owner and tenant. Reason for selling, advanced age of owner, who has other farms. For price and terms, address E. Emmons Coe, Oneida, N. Y. Owner will rent.

TOWN OF STEUBEN

Population 785

No. 617 — Farm of 15½ acres; located 5 miles from Holland Patent P. O., R. D. 1, and railway station, on line of R., W. & O. R. R.; 1½ miles from school; from 2 to 5 miles from Catholic and Protestant churches; 2¼ miles from butter factory; 1¾ miles from cheese factory; 2¼ miles from milk condensing plant and 5 miles from milk station. Highways, mostly good. Nearest city, Utica, 16 miles distant, population, about 85,000, reached by rail and highway. Surface of farm, level and rolling. Altitude, about 840 feet. Soil, some sandy, some rich, good. Acres in meadow, 6; in natural pasture, 9; in timber, 1, spruce, hemlock and poplar. Acres tillable, 10. Fruit, about 10 apple trees. Best adapted to potatoes, corn and vegetables. Fences, mostly wire. House, 1½ stories, 8 rooms, fair condition. Outbuildings: barn, 60x30; room for 3 horses, 3 cows, hay, straw, etc., and wagons, part of barn old, part comparatively new; also chicken house. Watered, house, by well; fields, by streams and springs. Occupied. Would make a good location for chicken farm. Employment could easily be secured on adjoining farms. Price, \$800. Terms, \$100 down, balance on monthly payments. Address F. H. Cookingham, 122 Genesee street, Utica, N. Y.

TOWN OF STEUBEN

Population 785

No. 618 — Farm of 165 acres; located 6 miles from Remsen P. O., R. D. 3, 2½ miles from railway station at East Steuben, on line of N. Y. C. R. R., ½ mile from school, ¾ mile from Congregational church, 1½ miles from cheese factory, 2½ miles from milk station. Highways, good. Surface of farm, rolling. Altitude, 1,500 feet. Soil, loam. Acres in meadow, 70; in natural pasture, 75; in timber, 20, maple, large. Acres tillable, 70. Best adapted to dairying, hay, grain and potatoes. Fences, wire and rail,

good condition. House, 10 rooms, good condition. Outbuildings: 2 cow barns, 1 40x60 and 1 40x66; horse barn, 30x45; carriage house, 30x40. Watered by well, springs and creek. Occupied by tenant. Reason for selling, to close an estate. Price, \$3,000. Terms, easy. Address Mrs. E. W. Freeman, 27 Dalton Ave., Pittsfield, Mass.

TOWN OF VERONA

Population 3,456

No. 619. — Farm of 129 acres; 3¼ miles from Verona station, on line of N. Y. C. and O. & W. R. R.; R. D. 2 from Durhamville; 10 rods from school; 1 mile from creamery; 3½ miles from milk station; 2 R. F. D. carriers pass house daily. Highways, in fair condition. Soil, sand and gravelly loam and muck. Acres in meadow, 50; tillable, 75; natural pasture, 52; timber, 2, maple and ash, second growth. Fruit, pears, plums and apples. Best adapted to grass, corn and oats. Occupied by owner. House, 2 stories, in good condition. Cow barn, 36x80, 20-foot posts, with 7-foot basement, pine siding, re-shingled in 1905 with Washington red cedar shingles; horse barn and wagon house, 36x50, pine siding, slate roof; hog house and hen house with basement, 20x30, 16-foot posts, 2 floors, used for storage; silo, 20x21x21; cow barn with basement above ground; 2 new hen houses; all floors in barns and hog house concrete. House built in 1882, well painted, tin roof, concrete cistern under kitchen, 10x10, and 8 feet deep; furnace heat. There is also on the place a shop or tool house, 20x30, 16-foot posts and pine siding; ice house, wood and store house, 18x20, 14-foot posts and pine siding. All buildings have been painted once and some twice. Farm will keep from 30 to 35 head of stock and 4 horses. Reason for selling, advanced age and poor health of owner. For price and terms, address Jerome A. Jackson, Durhamville, N. Y.

No. 620 — Farm of 180 acres; on road leading from Verona station to Vernon; 2 miles from either place; on the line of the proposed Buffalo, Rochester & Eastern Railway; 2 miles from 2 leading railroads, the N. Y. C. and W. S. & B.; 2 miles from canning factories and high school. Highways, good. Soil, sandy loam, clay subsoil. Acres in meadow, 60; acres tillable, 150; acres timber, 20,

maple, beech, elm and hemlock. Fruit, apples, pears, plums, prunes and cherries. Best adapted to general farming. Occupied by owner. Fences, wire, in good condition. House, modern, 14 rooms, slate roof; built in 1895. Dairy barn, 120x40, 54 feet high, slate roof, built in 1895. Horse barn, 50x34, slate roof, built in 1895; hog house, 60x16, steel roof, built in 1900. Maple grove, with sugar house, in good condition. Water, gravity system in barn yard; never-failing well and large cistern in house. This is one of the most desirable farms in the county, as to location, surroundings and general advantages. Reason for selling, advanced age of owner. Price, \$15,000. Terms, \$8,000 cash, balance can remain on bond and mortgage. Name and address of owner, I. L. Amann, Verona, N. Y., R. D. 2.

No. 621 — Farm of 150 acres, $\frac{1}{2}$ mile from State Bridge P. O.; 40 rods from station on line of O. & W. R. R.; $\frac{1}{2}$ mile from school; 1 mile from church; 40 rods from milk station. Highways, good; 4 miles from Oneida, population, about 9,000, reached by rail and highway. Occupied by owner. Surface, part rolling and part level. Soil, gravel and sand loam; 6 acres in timber, 140 acres tillable. Best adapted to corn, small grains, hay and potatoes. Fences, barbed wire, in good condition. House, 2 stories, upright, 18x26; wing, 16x24, $1\frac{1}{2}$ stories. Barn, 30x70, hemlock; barn, 20x25. Watered by well and running water; 4 miles from Oneida Lake. Price, \$5,000. Terms, one-third down. Address Asel Wilcox, Verona Station, N. Y.

No. 622 — Farm of 250 acres; 2 miles from Verona Station P. O.; 2 miles from railway station, on line of N. Y. C. & H. R. R. R.; 1 mile from school; 3 miles from churches; R. D. 1 from Verona station. Highways, good; 3 miles from Oneida, population, about 9,000, reached by highway. Occupied by owner. Level surface. Soil, muck, sandy loam with clay subsoil. Acres in meadow, 90; pasture, 100; acres tillable, 225. Fruit, apples. Best adapted to hay, grain and dairying. Fences, barbed wire, in good condition. House, $1\frac{1}{2}$ stories. Barns for stabling 80 cows and 15 horses and capable of holding enough feed for them. Watered by well and windmill; 6 miles from Oneida Lake. Price, \$15,000. Terms, one-third down. Address Asel Wilcox, Verona Station, N. Y.

No. 622 $\frac{1}{2}$ — Farm of 339 acres; 5 miles from Durhamville P. O., R. D. 1; $2\frac{1}{2}$ miles from railway station at State Bridge, on line of N. Y., O. & W. R. R.; $2\frac{1}{2}$ miles from railway station at Sylvan Beach, on line of L. V. R. R.; $\frac{3}{4}$ mile from school; 2 miles from church; 1 mile from cheese factory; $2\frac{1}{2}$ miles from milk station. Highways, level. Nearest city, Oneida, population, about 9,000, 7 miles distant, reached by rail and highway. Surface of farm, level and rolling. Soil, sandy loam and clay. Acres in meadow, 100; in natural pasture, 150; in timber, 50, maple, elm and ash; acres tillable, 150. Fruit, apples, cherries and plums. Best adapted to grass, corn, oats and buckwheat. Fences, woven wire, barbed wire and rail, good condition. House, 8 rooms, fair condition. Outbuildings: 1 barn, 36x60; barn, 40x60, with basement; barn, 20x70; corn house; hay house; hen house and silo, 16x24, good condition. Watered by well and creek. This property is $2\frac{1}{2}$ miles from Sylvan Beach. Occupied by owner. Reason for selling, owner has another farm and cannot attend to both. Price, \$8,000. Address Edgar S. Bennett, Durhamville, N. Y.

No. 623 — Farm of 197 acres; located 2 miles from Durhamville P. O., R. D. 2; $\frac{1}{2}$ mile from railway station at State Bridge, on line of N. Y., O. & W. R. R.; $\frac{1}{4}$ mile from school; $\frac{3}{4}$ mile from churches; 1 mile from cheese factory; $\frac{1}{2}$ mile from milk station. Highways, level and good. Nearest village, Oneida, population, about 9,000, 4 miles distant, reached by rail and highway. Surface, rolling. Acres in meadow, 40; in natural pasture, 60; in timber, 35 or 40, hemlock, soft maple, elm, birch and cedar; acres tillable, 60. One young and 1 old apple orchard. A few cherries, pears and grapes. Best adapted to corn, potatoes, grain, etc. Fences, wire, in good condition. Two houses, 1, 12 rooms; 1, 7 rooms. Horse barn, 40x60, good condition; cow barn, 30x50, with addition on side and end, suitable for 25 head of stock; new silo. Watered, house and barns, by wells; fields, by brook. Oneida Lake 3 miles distant. About 400 feet from Erie Canal. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$6,300. Terms, one-half down, balance at 5%. Address Mrs. Clara Hess Munroe, 44 Stone street, Oneida, N. Y.

*No. 624 — Farm of 100 acres; 2 miles from Verona P. O.; 3 miles from railway station at Verona Station on line of N. Y. C. & H. R. R.; 1 mile from school; 2 miles from Methodist and Presbyterian churches; 2½ miles from milk station. Highways, good. Nearest city, Oneida, population, 8,317, 5 miles distant, reached by rail and highway. Surface of farm, nearly level. Soil, clay and gravel loam. Acres in alfalfa, 2; in timber, 8. Acres tillable, 90. Fruit, apples, pears, grapes, cherries, plums for family use. Best adapted for a general farm. Fences, wire, in good condition. House, 11 rooms, heated by furnace, in fine condition. Outbuildings: cow barn, with 25 stanchions; horse barn, shop, hen house, granary, large silo, all in fairly good condition. Watered, house, by well; fields, by small streams. Occupied by owner. Reason for selling, to settle an estate. Price, \$7,500. Terms, half cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 625 — Farm of 45 acres; 1½ miles from Slate Ridge P. O., and railway station on line of N. Y., O. & W. R. R., ¾ mile from school; ¾ mile from Methodist church; 3 miles from Catholic, Baptist and Episcopal churches; 1½ miles from milk station. Highways, good. Nearest city, Oneida, population, 8,317, 5 miles distant, reached by rail or highway. Surface of farm, nearly level. Soil, clay loam. Acres in meadow, 20. All tillable. Fruit, plenty of apples, pears, cherries, ½ acre grapes. Fences, in fair condition. House, 12 rooms, in fine condition. Outbuildings: 2 good barns, ice house, poultry house and corn house. Watered, house, by well; fields, by springs. This farm is about 5 miles from Oneida Lake. Reason for selling, to settle an estate. Price, \$3,500. Terms, \$500 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 626 — Farm of 140 acres; 1 mile from Durhamville P. O., and railway station on line of N. Y., O. & W. R. R.; 1 mile from school; 1 mile from churches of several denominations; 1 mile from milk station. Highways, good. Nearest city, Oneida, population, 8,317, 3 miles distant, reached by rail or highway. Surface of farm, level. Soil, clay loam. All tillable. Very little fruit. Best adapted

to hay, grain, etc. House, 8 rooms; also 2 tenant houses. Outbuildings: gambrel roof, basement barn, 60x100; silo, 16x18x40; hog pen and hen house, all in good condition; also 2 good barns by tenant houses. Watered, house, by well; barns, by windmill. This farm is 7 miles from Oneida Lake. Occupied by tenant. Reason for selling, has other business. Price, \$8,500. Terms, \$2,500 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

No. 627 — Farm of 70 acres; 3 miles from Durhamville P. O., R. D.; ½ mile from railway station at State Bridge on line of N. Y., O. & W. R. R.; ¼ mile from school; ¼ mile from Methodist church; 2 miles from butter factory; ½ mile from cheese factory; 1 mile from milk station. Highways, good. Nearest city, Oneida, population, 8,317, 4½ miles distant, reached by rail and highway. Surface of farm, level and rolling. Altitude, 400 feet. Soil, black loam and muck. Acres in pasture, 27; in timber, 2; maple, second growth. Acres tillable, 68. Fruit, apples, plums, cherries and grapes. Best adapted to hay and grain. Fences, wire, in good condition. House, 15 rooms, in fine condition. Outbuildings: 3 good barns, hen house, granary, hog house. Watered, house and barns, by well; fields, by brook. This farm is 3 miles from Oneida Lake. Occupied by owner. Reason for selling, ill health. For price and terms, address William D. Miller, Durhamville, N. Y., R. D. 1.

*No. 628 — Farm of 213 acres; 1 mile from Oneida P. O., and railway station on line of N. Y. C., West Shore and N. Y., O. & W. R. R.; 1 mile from school; 1 mile from churches of nearly all denominations; 1 mile from milk station. Nearest city, Oneida, population, 8,317, 1 mile distant, reached by highway. Surface of farm, level, has 25 miles of tile underdraining. Soil, clay loam. Acres tillable, 189. Very little fruit. Best adapted to hay, grain, etc. House, 13 rooms, with bath and toilet; also 9 room tenant house. Outbuildings: gambrel roof basement barn, with 96 stanchions, and several other buildings, all in fine condition. Watered, house and barns, by windmill; fields, by streams. This farm is 9 miles from Oneida Lake. Occupied by owner. Reason for selling, too far from other interests. Price,

* Indicates farm is in hands of agent or real estate dealer.



FIG. 137.—BUILDINGS ON FARM No. 631, TOWN OF VERNON, ONEIDA COUNTY.

\$125 per acre. Terms, easy. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF VERNON

Population 3,197

No. 629—Farm of 260 acres; 2 miles from Vernon P. O. and railway station, on Oneida Electric R. R., with hourly service. Highways, good. Soil, gravel and loam. Acres in meadow, 185; acres tillable, 240; acres natural pasture, 70; acres timber, 5, maple and birch. Best adapted to corn, grain, hops and dairying. Altitude, 600 feet. Fences, post and wire. Large house, 4 rooms, bedroom and pantry on ground floor, 5 chambers, cellar and wood house, in good condition; also old dwelling which has been used as storehouse but which could be put in good condition at little expense. Basement barn, 100x40, with wing, 36x25, 2 silos attached; horse barn, 38x26; hop house, 45x20; hog house, 45x16. Watered, house and barns, by springs; fields, by running water. Reason for selling, owner wishes to retire. This farm is $5\frac{1}{2}$ miles from Oneida, on the N. Y. C. R. R., and 4 miles from Kenwood, on the O. & W. R. R., near canning factory, cheese factory and milk station. Price, \$40 per acre. Terms, one-third down. Name and address of owner, F. A. Gary, Vernon, N. Y. Owner will rent.

*No. 630—Farm of 140 acres; 1 mile from Vernon P. O. and railway station, on line of West Shore R. R.; 1 mile from school; 1 mile from churches of several denominations; 1 mile from milk station. Surface of farm, level. Nearest city, Oneida, population 8,317, 7 miles distant, reached by rail or highway. Surface of farm, gently rolling. Soil, gravel loam. Acres in timber, 6. Nearly all tillable. Fruit, good apple orchard. Best adapted to general crops. Fences, wire, in good condition. House, 14 rooms, in fine condition. Outbuildings: basement barn, 30x100, with cement floors, in fine condition. Watered, house by well, barns by well, fields by small stream. Occupied by owner. Reason for selling, has other interests. Price, \$12,000. Terms, \$7,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 631—Farm of 118 acres; 1 mile from Vernon P. O. and railway station,

on line of West Shore R. R.; $\frac{1}{4}$ mile from trolley station at Morrisons, on Oneida railway trolley line; 1 mile from school and churches of several denominations; 1 mile from milk station. Highways, State road. Nearest village, Vernon, population 451, 1 mile distant, reached by rail or highway. Surface of farm, tillable land nearly level, pasture a gully. Soil, gravel and clay loam. Acres in natural pasture, 60. Acres tillable, 55. Fruit, small orchard. Best adapted to dairying, hay, etc. Fences, mostly wire, in good condition. House, 12 rooms, in fine condition. Outbuildings: horse barn, cow barn and several smaller buildings, in fair condition. Watered, house by well, fields by never-failing stream. Occupied by tenant. Reason for selling, to settle an estate. Price, \$100 per acre. Terms, reasonable. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

*No. 632—Farm of 30 acres; 1 mile from Oneida Castle P. O. and railway station, on line of West Shore and N. Y., O. & W. R. R.; 1 mile from school and churches; 1 mile from milk station. Highways, level, good. Nearest city, Oneida, population 8,317, 2 miles distant, reached by rail or highway. Surface of farm, nearly level. Soil, gravel and clay loam. All tillable. Fruit, few apples. Best adapted for poultry farm, garden truck, etc. House, 9 rooms, in good condition. Outbuildings: barn, 18x32, nearly new; hen house, 16x40; 4 colony houses, 6x12. Watered, house by well, barns by well, fields by stream. Occupied by owner. Reason for selling, has other business. Price, \$3,400. Terms, \$600 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

No. 633—Farm of 155 acres; $\frac{1}{2}$ mile from Vernon P. O., R. D.; $\frac{1}{4}$ mile from railway station at Vernon, on line of N. Y. C. & West Shore R. R.; $\frac{1}{4}$ mile from school; $\frac{3}{4}$ mile from Presbyterian, Methodist and Baptist churches; 2 miles from butter factory; 1 mile from cheese factory; $\frac{1}{4}$ mile from milk station and condensing plant. Highways, good. Nearest city, Oneida, population 8,317, 6 miles distant, reached by rail and highway. Soil, gravel loam. Acres in meadow, 80; in natural pasture, 60; in timber, 25, black cherry, hemlock,

* Indicates farm is in hands of agent or real estate dealer.

birch and maple. Acres tillable, 125. Fruit, few plums and apples. Best adapted to corn, grain, hops and dairying. Fences, wire. House, large, in good condition. Outbuildings: barn, 40x100, silo attached; horse barn, 30x40; shop and hog house, 20x30. Watered, house by well, barns by wells and spring, fields by running water. Occupied by owner. Reason for selling, owner wishes to retire. Price, \$9,500. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address W. W. Stook, Vernon, N. Y.

TOWN OF VIENNA

Population 1,355

No. 634 — Farm of 73 acres; 5 miles from Cleveland P. O., R. D. No. 1, and railway station, on line of N. Y., O. & W. R. R.; 5 miles from railway station at Camden, on line of N. Y. C. & H. R. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{4}$ mile from

Methodist and Baptist churches; 5 miles from butter factory; $\frac{1}{4}$ mile from cheese factory; 5 miles from milk station and condensing plant. Highways, rough and hilly. Nearest village, Camden, population 2,170, 5 miles distant, reached by highway. Surface of farm, level. Altitude, 400 feet. Soil, gravel loam and muck. Acres in meadow, 35; in natural pasture, 15; in timber, 1; 15 acres in muck. Acres tillable, 30. Fruit, few old apple trees. Best adapted to onions and grain. Fences, in fair condition. House, 8 rooms, in good condition. Outbuildings: barn, 20x30, in good condition; carpenter shop, 10x12. Watered, house by wells, barns by well, field by spring and stream. Occupied by owner. Reason for selling, to settle estate. Price, \$1,500. Terms, \$500 cash, balance on easy payments. Address Wm. M. Hallagher, Cleveland, N. Y.

ONONDAGA COUNTY

Area, 824 square miles. Population, 200,298. Annual precipitation, 46.66 inches. Annual mean temperature, 48.9°. Number of farms, 5,770. County seat, Syracuse.

This county is located in the central part of the state, its northern shores are bounded by Oneida Lake. Lake Skaneateles forms the southwest boundary. It is excellently drained by the Seneca River and Chittenango and Onondaga Creeks.

Its surface features are gently undulating in the northern part. In the extreme southern part the surface is generally rough and hills extend in long ridges north and south with narrow valleys between. There is a general slope toward the center of the county into the flats of the "great level." In the southern portion we find a clay and dark sandy loam, in the valleys clay loam, in the central and northern portion a rich sandy and gravelly loam. Among the minerals found in this county are salt, iron ore, limestone and gypsum; the Onondaga limestone being an excellent building stone. Salt is obtained from salt wells in the vicinity of Syracuse. The value of the exported product has at times exceeded a million dollars annually. The county is adapted to general farming, the leading products being corn, 707,385 bushels; oats, 1,127,012 bushels; wheat, 173,499 bushels; barley, 166,274 bushels; buckwheat, 82,839 bushels; potatoes, 1,671,835 bushels; hay and forage, 215,058 tons. Like many other counties of the state alfalfa can be grown with great success. The total value of farm property is \$37,291,043, an increase of 17.5 per cent. in the past ten years. The average price of improved lands is \$67.58 per acre.

Domestic animals reported as follows: Dairy cows, 36,331; horses, 17,128; swine, 21,453; sheep, 17,284; poultry, 302,764; production of milk was 21,035,070 gallons, which with the products of 55 milk stations and factories sold for \$2,063,923. Numerous transportation lines intersect the county. Syracuse, with a population of 137,249, is a large manufacturing center and is the home of Syracuse University. There are 255 district schools well located throughout the county and 29 agricultural societies. The county has 90 miles of state and county roads and 927 miles of other improved highways. Onondaga is one of the progressive counties of the state.

TOWN OF ELBRIDGE

Population 2,980

* No. 635 — Farm of 200 acres; 2 miles from Memphis P. O.; $1\frac{1}{2}$ miles from railway station at Halfway, on line

of N. Y. C. & H. R. R. R.; 1 mile from school; 2 miles from churches; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Syracuse, population 137,249, 12 miles distant, reached by rail

* Indicates farm is in hands of agent or real estate dealer.

and highway. Surface of farm, level and rolling. Soil, gravelly loam. All tillable. Fruit, 2 large orchards. Best adapted to alfalfa, corn, potatoes, grain, etc. Fences, in good condition. Houses: main house is a mansion, in fine condition, has 2 baths and 3 toilets, steam heat, etc. Outbuildings, ample and in good condition. Watered: fields by running water. Occupied by owner. Reason for selling, has other business. Price, \$110 per acre. Terms, \$12,000 cash, balance on mortgage. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF LYSANDER

Population 4,509

No. 636 — Farm of 115 acres; 4 miles from Baldwinsville P. O., R. D. No. 4; 4 miles from railway station at Butte, on line of D., L. & W. R. R.; 1½ miles from school; 4 miles from churches of several denominations; 3 miles from butter factory; 4 miles from condensing plant. Highways, good. Nearest city, Syracuse, population 137,249, 17 miles distant, reached by rail or highway. Surface of farm, level. Altitude, 430 feet. Soil, sandy gravel. Acres in meadow, 25 in natural pasture, 25; in timber, 20, chestnut, ash and maple. Acres tillable, 90. Fruit, none, except small trees in garden. Best adapted to tobacco, corn, rye, potatoes, etc. House, medium size, in fair condition. Outbuildings: large, in fair condition. Watered: house and barns by wells, fields by lake. Occupied by tenant. Reason for selling, owner has other business. Price reasonable and terms easy. Owner will rent on shares or with option to buy. Address Frank Patrick, Sennett, N. Y., or Anna Hill, Baldwinsville, N. Y.

* No. 637 — Farm of 40 acres; 4 miles from Butte P. O., R. D.; 4 miles from railway station at Lamsons, on line of D., L. & W. R. R.; 1½ miles from school; 1½ miles from Methodist church; 4 miles from butter factory and milk station; 4 miles from condensing plant. Highways, good. Nearest city, Syracuse, population 137,249, 18 miles distant, reached by rail or highway. Surface of farm, level. Altitude, 425 feet. Acres in natural pasture, 30; in timber, 10, maple, elm and ash. Acres tillable, 30. Best adapted to tobacco, corn, rye, oats. Fences, in poor condition. House, small,

in fair condition. Barns, good size, in fair condition. Watered: house, barns and fields by wells. Reason for selling, has other interests. Price, reasonable. Address Fred Woods, agent, Baldwinsville, N. Y. Owner will rent with option to buy.

* No. 638 — Farm of 50 acres; 3 miles from Lysander P. O.; 4 miles from railway station at Lamsons, on line of D., L. & W. R. R.; 1 mile from school; 3 miles from Methodist and Congregational churches; 3 miles from cheese factory; 4 miles from condensing plant. Highways, good. Nearest city, Syracuse, population 137,249, 20 miles distant, reached by highway. Surface of farm, level. Altitude, 430 feet. Soil, sandy. Acres in meadow, 40; in natural pasture, 10. All tillable. Fruit, apples. Best adapted for corn, rye, vetch, etc. Fences, in poor condition. House, large, in fair condition. Barns, medium size, in fair condition. Watered: house and barns by well, fields by creek. Reason for selling, to settle an estate. Price, reasonable. Terms, easy. Address C. H. Fancher, agent, Lamsons, N. Y. Owner will rent.

TOWN OF MANLIUS

Population 6,016

No. 639 — Farm of 60 acres; 1¼ miles from Fayetteville P. O. and railway station; steam and electric cars; R. D. Manlius. Highways, good; 1 mile from State road. Soil, clay loam. Acres of alfalfa, 25; acres tillable, 50; acres natural pasture and timber, 10, second growth. Best adapted to alfalfa raising and dairying. Altitude, 750 feet. Fences, fair. 20-room house, bath room, running water, etc., in fine condition. Good barns. Watered by well and running water. Price, \$14,000. Terms, easy. Address F. E. Dawley, Fayetteville, N. Y.

No. 640 — Farm of 18 acres; located 1½ miles east from Fayetteville. All alfalfa land. Good house. Fair barn. Some fruit. ¼ mile to school, on town road; ¾ mile to State road. Price, \$3,000. Address F. E. Dawley, Fayetteville, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF ONONDAGA

Population, 6,340

No. 641 — Farm of 183 acres; 3 miles from Onondaga P. O., R. D. 2; 7 miles from Syracuse, on line of N. Y. C. R. R. and D., L. & W. R. R.; $\frac{1}{2}$ mile from school; 3 miles from Methodist and Presbyterian churches; $1\frac{1}{2}$ miles from butter factory. Highways, stone and macadamized. Nearest village, Onondaga, population 400, 3 miles distant; nearest city, Syracuse, population, 138,000, 7 miles distant. Surface of farm, rolling. Altitude, 1,200 feet. Soil, sandy loam. Acres in meadow, 120; in timber, 13; all tillable except woodland. Fruit, 224 choice apple trees. Best adapted to alfalfa, oats, barley, wheat. Fences, woven wire. House, 12 rooms, in good condition. Barn, 30x26, on basement; barn, 26x60; barn, 30x40; barn, 40x45; cow house, pig pen, hen house. Watered, house by well, barns by running water, fields by spring. 50 acres of fine alfalfa. This is good land and milk from this farm sells for 4 cents per quart. Occupied by tenant. Reason for selling, owner is not a farmer. Price, \$11,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address D. L. Curtis and E. P. Boyle, Onondaga, N. Y.

No. 642 — Farm of 30 acres; located 4 miles from Syracuse P. O., R. D. 3; 6 miles from railway station at Syracuse, on line of several railways, $\frac{1}{4}$ mile from school; 2 miles from Catholic and Protestant churches; $\frac{3}{4}$ mile from milk station. Highways, good. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, limestone formation. Acres in meadow, 18; in timber, 3, beech and maple, second growth. Acres tillable, 26. Fruit, about 50 apple trees, 10 plum, 10 cherry, 10 pear, 5 peach and 2 quince trees, also berries, grapes and currants. Best adapted to alfalfa, potatoes, grain and fruit. Fences, mostly new wire, good. House, 8 rooms, good condition. Outbuildings: new barn, 32x44; barn, 32x44, with new cow stable for seven cows, 14x32; new hog house, 10x15; new chicken house, 16x20. All buildings except house have been built within last three years. Watered, house by well and cistern, barns by well. This farm is about 7 miles from Onondaga Lake. Occupied by owner. Reason for selling, ill health of owner. Price, \$4,-

000. Terms, cash. Address Alice L. Amidon, Station A, Syracuse, N. Y., R. D. 3.

No. 643 — Farm of 114 acres; 5 miles from Syracuse P. O., R. D. No. 2, and railway station, on lines of N. Y. C., D., L. & W., and N. Y., O. & W. R. R.; school on farm; $1\frac{1}{2}$ miles from Methodist and Presbyterian churches. Highways, State road. Nearest city, Syracuse, population 137,249, 5 miles distant, reached by highway. Surface of farm, sloping. Altitude, 900 feet. Soil, gravel loam. Acres in meadow, 61; in natural pasture, 8; in timber, 3; in alfalfa, 51. All tillable. Fruit, small apple orchard. Best adapted to alfalfa, berries, corn, potatoes, barley, oats, etc. House, 9 rooms, in good condition. Outbuildings: dairy barn, 40x64, 22-foot posts; ice house, cooling room, etc. Watered: house and barn by wells. Occupied by tenant. Reason for selling, owner has other business. Price, \$11,000. Terms, to suit purchaser. Address E. P. Boyle, Onondaga, N. Y. Owner will rent.

TOWN OF POMPEY

Population 2,093

No. 644 — Farm of 144 acres; 5 miles from Manlius P. O., R. D. 3, and railway station, on line of Chenango Valley branch of the N. Y. C. R. R.; 40 rods from school; $1\frac{1}{2}$ miles from school and church; $1\frac{1}{4}$ miles from butter factory and cheese factory; $1\frac{1}{2}$ miles from milk station; 4 miles from condensing plant. Highways, good. Nearest village, Manlius, population 1,500, 5 miles distant, reached by highway; Syracuse, 14 miles distant, reached by trolley from Manlius. Surface, slightly rolling, no hills; lies sloping to southeast. Soil, dark clay and gravel loam. Acres in meadow, 40; in timber, 7 or 8; acres tillable, all except wood lot. 133 apple trees and a few plum trees. Best adapted to wheat, corn, barley, oats, potatoes, cabbage and alfalfa. Fences, rail and wire, fair condition. House, 30x38, 10 rooms; wing, 12x16; wood house. Barns: horse barn and carriage house, 30x40, painted, in good condition; hog and corn house, 12x14; hay, grain and cow barn, 42x68; 2 hay barns, 20x30, 18x30. Watered, house by wells, barns by wells and springs, fields by springs. Occupied by tenant. Reason for selling, owner is not a farmer and is in poor health. Price, \$50 per

acre. Terms, part cash, part mortgage. Address C. A. Lakin, owner, Manlius, Onondaga Co., N. Y., R. D. 3.

* No. 645 — Farm of 100 acres; 6 miles from Manlius P. O., R. D. 3; 6 miles from railway station at Manlius, on line of Chenango Valley R. R.; 1 mile from school; 2 miles from Presbyterian, Congregational and Catholic churches, cheese factory and milk station; 5 miles from condensing plant. Highways, good. Nearest village, Pompey Hill, population 400, 2½ miles distant. Nearest city, Syracuse, population 138,000, 14½ miles distant, reached by highways. Surface of farm, comparatively level. Altitude, 1,450 feet. Soil, clay loam. Acres in meadow, 33; in natural pasture, 25; in timber, 8, beech, maple and hemlock; acres tillable, 36. Fruit, apples, 5 cherry, 4 pear and 6 plum trees. Best adapted to corn, oats, barley, potatoes, alfalfa, cabbage. Fences, rail and wire. House, new, 10 rooms, good condition. Barns, 36x40, 30x28, in fair condition. Watered, house and barns by springs, fields by springs. Occupied by owner and tenant. Reason for selling, owner a widow and unable to take charge of farm. Price, \$45 per acre. Terms, part cash, part on mortgage. Address C. A. Lakin, agent, Manlius, N. Y.

No. 646 — Farm of 141 acres; located 5 miles from Manlius P. O., R. D. 3; 3 miles from railway station at Oran, on line of W. S. R. R.; ¾ mile from school and church; 1 mile from butter and cheese factory; 1 mile from milk station. Highways, good. Nearest city, Syracuse, population 138,000, 15 miles distant, reached by highway and trolley. Surface, rolling. Soil, dark loam. 10 acres of timber, maple, beech and hemlock; a few pine trees. Acres tillable, 131; 75 to 100 apple trees. Best adapted to hay, alfalfa, wheat, barley, oats, corn, buckwheat. Fences, wire and rail, good condition. Large 12-room house, 2 cellars, good condition. Barns: hay barn, with basement stable, 56x32; large silo; 2 large sheds attached to barn; grain barn, 30x40; granary, 16x20; carriage house, 25x35. House watered by well, barns by well, fields by spring and creek. Occupied by tenant. Reason for selling, owner too far away to give it personal attention. Bell telephone in house, on

direct road; milk route by door. Price, on application. Address F. F. Hubbard, Canastota, N. Y., or Mrs. Frank H. Vail, Manlius, N. Y.

* No. 647 — Farm of 94½ acres; 9¾ miles from Manlius, N. Y., P. O., R. D. 3; 9 miles from station of Apulia, on line of the D., L. & W. R. R.; 1 mile from school; 3½ miles from Presbyterian, Methodist and Catholic churches; 2 miles from cheese factory; 2 miles from milk station; 4 miles from condensing plant. Highways, good. Nearest village, Fabius, population of 500, 4 miles distant, reached by highway; city of Syracuse, population 138,000, distant 16 miles by highway. Surface, level. Altitude, 1,300 feet. Soil, dark clay loam. 20 acres of meadow; 6 acres of timber, beech and maple; all of farm tillable except the wooded part. Fruit consists of apple, peach and pear trees and berries. Land adapted to corn, wheat, oats, barley, buckwheat and potatoes. Fences of stone, wire and rail, in good condition. House, 26x32, with wing, 16x20, in good condition. New basement barn, also barn, 36x50, in fair condition. House watered by well, barn by springs and well, fields by springs. Cazenovia Lake is within 4½ miles of farm. This farm is located on highway in nice neighborhood, and is in good state of cultivation, producing large crops. Occupied by owner; possession can be given on 30 days' notice. Reason for selling, owner has two farms and cannot care for both to advantage. Price, \$3,500. Terms, part cash and part mortgage. Address owner, Dennis Dwyer, care of C. A. Lakin, agent, Manlius, N. Y.

No. 648 — Farm of 114 acres; 1¼ miles from Manlius P. O., R. D. 2; 1¼ miles from station of Manlius, on line of N. Y. C. & H. R. R. R.; 1 mile from school; 1¼ miles from churches; 1½ miles from butter factory and condensing plant. First-class stone road. Nearest village, Manlius, population 2,000, distant 1¼ miles; Syracuse, population 138,000, 10 miles distant by rail. Surface, rolling to the east. Altitude, about 600 feet. Soil, lime. 25 acres in alfalfa; 20 acres in meadow; 10 acres in natural pasture; 5 acres in timber, pine, hemlock and hardwood; 100 acres tillable.

* Indicates farm is in hands of agent or real estate dealer.

Fruit, about 50 apple trees. Land best adapted to wheat, barley, corn, tobacco, oats, rye and potatoes. Good woven wire fences and stone walls. House, 30x40, new. New barn, 30x60; horse barn, 30x40; hog house, 40x20; hen house, 120x20. Watered, house by springs and well, barns by springs piped, fields by springs. This farm is all up to date, with all new buildings, and is under the best of cultivation. Occupied by owner. Reason for selling, owner has other business. Price on application. Terms, cash. Address M. Murphy, Manlius, N. Y.

No. 649 — Farm of 198 acres; 6 miles from Manlius P. O., R. D. 3, and station on line of Chenango branch of the N. Y. C. R. R.; 50 rods from school; $1\frac{1}{2}$ miles from churches (Presbyterian and Catholic); $1\frac{1}{2}$ miles from butter factory and cheese factory; $2\frac{1}{2}$ miles from milk station; $5\frac{1}{2}$ miles from condensing plant. Good roads, part stone. Nearest large village, Manlius, population 2,000, distant 6 miles by highway; Pompey Village is $1\frac{1}{2}$ miles distant; Fabius, 5 miles distant; and the city of Syracuse, 16 miles distant. Surface, rolling. Altitude, 1,400 feet. Soil, clay and limestone. 65 acres of meadow, part alfalfa. 65 acres of natural pasture and woodland, beech, elm, pine, maple and hemlock; 132 acres tillable. Fruit consists of 150 apple trees, 5 pear trees, 4 plum trees, and $\frac{1}{4}$ acre of raspberries. Land best adapted to corn, rye, wheat, barley, oats, alfalfa, potatoes and cabbage. Fences, posts and wire, in good condition. House, 12 rooms, in good condition. Horse barn, in good condition; 3 other barns, in fair condition, large size; 2 other outbuildings, in fair condition. House has well and cistern water; barns have springs; fields are well watered by springs. Cazenovia Lake is 5 miles distant. Occupied by owner. Reason for selling, owner does not wish to farm any longer. Price and terms on application. Address Thomas Mullen, Manlius, N. Y., R. D. 3.

No. 650 — Farm of 17 acres; located $\frac{1}{2}$ mile from Oran P. O.; $\frac{1}{4}$ mile from railway station at Oran, on line of W. S. R. R.; $\frac{1}{2}$ miles from school and church; $\frac{1}{4}$ mile from milk station; 7 miles from milk condensing plant. Highways, good. Nearest large village, Manlius, 3 miles distant, nearest city, Syracuse, 12 miles distant, population about 140,000,

reached by rail and highway. Surface of farm, level. Altitude about 700 feet. Soil, clay loam. Acres in meadow, 13; in natural pasture, 4. All tillable. Fruit, apples, plums, cherries and pears. Adapted to all crops grown in this section. Fences, wire, fair condition. House, 28x46; 12 rooms, with modern improvements. Outbuildings: barn, 26x36, wing, 18x20, first-class condition. Watered by good well. Occupied by owner. Reason for selling, owner has business in west and south. Price, \$4,600. Terms, \$2,000 down, balance on time. The house has bath, hot and cold water, furnace, etc. Address John F. Lewis, Oran, N. Y.

No. 651 — Farm of 94 acres; located $2\frac{1}{2}$ miles from Pompey P. O., R. D. 1; 4 miles from railway station at Apulia, on line of D. L. & W. R. R.; $2\frac{1}{2}$ miles from school, butter factory, Catholic and Protestant churches; 4 miles from milk station. Highways, somewhat hilly, but good. Nearest city, Syracuse, 17 miles distant, population about 140,000, reached by rail and highway. Surface of farm, rolling. Altitude about 1,300 feet. Soil, dark loam with clay subsoil. Acres in meadow, 25; in natural pasture, 10; in timber, 12, beech and maple. Acres tillable, 80. Fruit, 565 apple, 180 cherry, 32 pear, 140 plum and 75 peach trees, also currants and raspberries. Best adapted to fruit, corn, grain and cabbage. Fences, wire, fair condition. House, 28x38, with two wings, fine condition. Outbuildings: barn, 31x108, with three wings; storage barn, 18x22; basement barn, 16x30, good condition. Watered, house by well; barns, by running water; fields by springs. Occupied by tenant. Reason for selling, owner has other business. Price, \$125 per acre. Terms, \$8,000 cash, balance on time at 5%. Address L. L. Woodford, 2356 Midland avenue, Syracuse, N. Y.

TOWN OF SKANEATELES

Population 4,274

No. 652 — Farm of 50 acres; located in Skaneateles which contains two hotels, six churches, new school, two banks, library, etc.; on branch of N. Y. C. R. R.; also accessible to Auburn and Syracuse by electric car, running on 30 minute summer schedule; located near Skaneateles Lake. House, 16 rooms,



FIG. 138.— REAR VIEW OF BUILDINGS ON FARM NO. 631, TOWN OF VERNON,
ONEIDA COUNTY.



FIG. 139.— BUILDINGS ON FARM NO. 635, TOWN OF ELBRIDGE, ONONDAGA
COUNTY.

four piazzas, bath, 32x58. House faces road and lake. Outbuildings: horse stable 40x20; main barn 100x30, with basement cow stable; silo; hog house 60x18; poultry house 36x14. For price and terms address Geo. M. Tallcot, Skaneateles, N. Y.

TOWN OF TULLY

Population 1,386

No. 653 — Farm of 400 acres; located 3 miles from Tully P. O., and railway station on lines of D., L. & W. and Lehigh Valley R. R.; 1/3 mile from school; 3 miles from churches of all denominations; 3 miles from butter factory and milk station. Highways, gravel and

slate. Nearest village, Tully, population 551, 3 miles distant, reached by highway. Surface of farm, 300 acres level, 100 acres upland. Soil, gravel loam and swamp. Acres in meadow, 50; in natural pasture, 200; in timber, 150, pine, hemlock and hardwood. Acres tillable, 100. Best adapted for alfalfa, cabbage, corn and dairying. Fences, wire, in fair condition. House 40x50, in good condition. Barn 36x80, in good condition. Watered: house and barns by running water, fields by springs. Labrador Lake adjoins the farm on one side. Reason for selling, advanced age of owner. Occupied by owner. Price, \$5,500. Terms, small payment down, balance on mortgage. Address John Crouch, Tully, N. Y.

ONTARIO COUNTY

Area, 674 square miles. Population, 52,286. Annual precipitation, 37.99 inches. Annual mean temperature, 49.2°. Number of farms, 4,416. County seat, Canandaigua.

This county is situated in the middle western portion of the state and is one of New York State's strong agricultural counties. It is partly bounded on the east by Seneca Lake and is drained by Flint, Honeoye and Mud Creeks and Canandaigua outlet. The surface is finely diversified with hills, valleys and ridges. The contour is quite irregular in the southwestern part, there being many steep hills and deep valleys. These gradually slope down to ordinary hills in about the center of the county and to gentle undulations and level country in the northeastern part. The county has considerable woodland on which ash, beech, elm, oak and sugar maple are found. The principal rocks which underlie the county are Onondaga limestone and Devonian sandstone. It also has quarries of gypsum, water limestone and salt. The soil is very productive, ranging from a rich gravelly loam, interspersed with clay in the northern and central portions, to a rich clay loam in the valleys of the southern part of the county. All forms of agriculture, orcharding and vineyards included, are successfully carried on in the county. The leading crops reported are corn, 593,169 bushels; oats, 1,365,487 bushels; wheat, 532,138 bushels; barley, 159,584 bushels; rye, 51,700 bushels; dry beans, 113,303 bushels; potatoes, 1,642,755 bushels; hay and forage, 93,364 tons; hops, 282,253 pounds. The total value of all farm property is \$32,593,635, an increase of 37.4 per cent. since the census of 1900. The average value of farm land alone per acre is \$39.53, a gain of \$8.24 during the last decade. The average value of improved land is \$71.42 per acre. Domestic animals reported: Dairy cows, 13,272; horses, 15,620; swine, 17,035; sheep, 67,502; poultry, 243,068; production of milk, 6,410,876 gallons, which valued with its products amounted to \$465,930.

The county is intersected by several trunk lines of railroads, which furnish ample facilities for marketing all products. There are 193 district schools, and Hobart College and William Smith College for Women are located at Geneva. Here also is located the New York State Experiment Station, an institution devoted to scientific agriculture equal to any in the world. Large nurseries are located in this county. The county has 55 miles of state and county roads and 845 miles of improved highways.

TOWN OF CANADICE

Population 559

*No. 654 — Farm of 101 acres; located 4 miles from Honeoye P. O., 6

miles from railway station at Hemlock, on line of Lehigh Valley R. R.; 1/2 mile from school and Methodist church. Highways hilly. Nearest large village, Canandaigua, 10 miles distant, reached

* Indicates farm is in hands of agent or real estate dealer.

by highway. Surface of farm, rolling. Altitude, 1,400 ft. Soil, loam. Acres in meadow, 20; in natural pasture, 20. Acres tillable, 75. Fruit enough for family use. Best adapted to hay, grain and potatoes. Fences in fair condition. House, 10 rooms, fair condition. Basement barn 40x60, fair condition. Watered by well and spring. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,045. Terms, one half down, balance on mortgage. Address Garfield Real Estate Co., 1 Exchange St., Rochester, N. Y.

TOWN OF FARMINGTON.

Population 1,568

*No. 655 — Farm of 74 acres; located 3 miles from Victor P. O. and railway station, on line of N. Y. C. & H. R. R. R.; 2 miles from Rochester & Eastern trolley; $\frac{1}{2}$ mile from school; 3 miles from churches; 2 miles from milk station. Highways, good. Nearest city, Rochester, 16 miles distant, reached by rail and highway. Altitude, 500 ft. Soil, gravel loam. Acres in meadow, 10, all tillable. Fruit, 4 acres of apples, 60 peach trees. Best adapted to potatoes, alfalfa, grain and corn. Fences, wire, good condition. House, 12 rooms, built 1908, all improvements. Outbuildings: barn 32x62 with basement, built 1907; ice house and hen house. Watered by well and stream. Occupied by owner. Reason for selling, owner has other business. Price, \$8,000. Terms, \$3,000 down, balance on mortgage. Address Garfield Real Estate Co., 1 Exchange St., Rochester, N. Y.

No. 656 — Farm of 285 acres; located 3 miles from Shortsville P. O., R. D. 1, and railway station, on line of N. Y. C. R. R.; 3 miles from railway station at Farmington, on line of L. V. R. R.; $\frac{1}{2}$ mile from school and Protestant churches; $2\frac{1}{2}$ miles from milk condensing plant. Highways, good. Nearest large village, Canandaigua, 5 miles distant, reached by highway. Surface of farm, rolling. Soil, clay subsoil. Acres in meadow, 60; in natural pasture, 50; in timber, 25, beech, maple and elm. Acres tillable, 250. Fruit, 4 acres of orchard, apples, peaches and pears. Adapted to any crop grown in this climate. Fences, rail and wire, fair

condition. Large double house, 18 rooms, fair condition. Outbuildings: horse barn 28x36, carriage house 20x30, barn 30x55, barn 30x60, shed 18x50 and hen house 16x50, good condition. Watered by well and springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$90 per acre. Terms, will take mortgage for \$10,000, balance cash. Address C. H. Herendeen, Shortsville, N. Y.

TOWN OF GENEVA

Population 1,086

No. 657 — Farm of $16\frac{1}{4}$ acres; located $\frac{1}{2}$ mile from Geneva P. O.; $\frac{3}{4}$ mile from railway station at Geneva, on line of N. Y. C. & L. V. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from Catholic and Protestant churches. Highways good. Soil, gravelly loam. Acres tillable, $16\frac{1}{4}$. Best adapted to wheat, oats, barley and fruit. No buildings. Watered by well. Occupied by tenant. Reason for selling, advanced age of owner. For price and terms address Mrs. L. I. Boyd, 12 Castle street, Geneva, N. Y.

No. 658 — Farm of 50 acres; located 4 miles from city of Geneva; $\frac{1}{4}$ mile from railway station at Billsboro, on line of N. Y. C. R. R. (Pa. Div.); 1 mile from school; 4 miles from Catholic and Protestant churches; 4 miles from milk station. Highways, gravel, good condition. Surface of farm, slightly rolling. Soil, some clay and some sand. All tillable, except 2 acres of timber. Fruit, apples, peaches, pears, plums, cherries, quinces. Best adapted to corn, oats, potatoes, cabbage, wheat, etc. House, 14 rooms, good condition, brick. Also good tenant house. Outbuildings, 2 barns. Watered, house, by spring; barns, by well; fields, by spring. Farm has lake front, number of cottage sites, beautiful location. Occupied by owner. Reason for selling, ill health of owner. For price and terms address Mrs. Elizabeth Rupert, Geneva, N. Y., R. D. 1.

No. 659 — Farm of $16\frac{1}{4}$ acres; located 1 mile from Geneva city, on line of N. Y. C. R. R.; $\frac{1}{4}$ mile from school, Catholic and Protestant churches; $1\frac{1}{2}$ miles from milk station. Highways in good condition. Surface of farm, level. Soil, gravelly loam. Acres tillable, $16\frac{3}{4}$.

* Indicates farm is in hands of agent or real estate dealer.

Best adapted to fruits. No fences. No buildings. Watered by wells. Occupied by tenant. Reason for selling, owner unable to work farm. Price, \$500 per acre. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address C. A. Boyd, 444 Exchange street, Geneva, N. Y.

TOWN OF MANCHESTER

Population 4,889

No. 660 — Farm of 260 acres; 1 mile from Shortsville P. O.; 1 mile from railway station at Shortsville, on line of N. Y. C. & H. R. R. R.; 1 mile from school, Presbyterian, Methodist, Episcopal and Catholic churches and from milk station. Highways, good. Nearest city, Geneva, population 12,000, 16 miles distant, reached by rail or highway. Surface of farm, rolling. Altitude, 650 feet. Soil, loam and limestone. Acres in meadow, 75; in natural pasture, 85; acres tillable, 200. Fruit, 15 acres of apple orchard. Best adapted to corn, wheat, potatoes and vegetables. Fences, wire, in good condition. House, 12 rooms, in good condition. Outbuildings, barn, 36x90; 7-foot basement horse barn, 40x60; 7-foot basement horse barn, 36x50; icehouse and hennery. Watered, house, by well; barns, by cistern and well; fields, by spring and small stream. Water pipes connected to the 3 barns by motor power. Six miles from Canandaigua lake; 1 mile from Canandaigua outlet. Occupied by owner's brother. Reason for selling, owner is a non-resident. Price, \$85 per acre. Terms, easy. Address A. M. Bentley, Clifton Springs, N. Y., care of C. M. Bentley.

TOWN OF PHELPS

Population 4,733

No. 661 — Farm of 54 acres; located $\frac{1}{2}$ mile from railway station at Oaks Corners, on line of N. Y. C. R. R., $\frac{3}{4}$ mile from Presbyterian church, $4\frac{1}{2}$ miles from butter factory and milk station. Highways, good. Nearest city, Geneva, $4\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, level. Soil, sandy loam. Acres in natural pasture, 15; in timber, 1, ash and soft maple. Acres tillable, 40. Fruit, apples, cherries, peaches and pears. Best adapted to general farming. Fences, wire, poor. House, 12 rooms, good condition. Outbuildings: basement barn, 72x26; hen

house, 17x17, good condition. Watered by well. This farm is $4\frac{1}{2}$ miles from Seneca Lake. Reason for selling, owner in other business. Price, \$5,000. Terms, \$3,000 cash, balance on mortgage at 5% int. Address Lincoln G. Backus, New Rochelle, N. Y. Owner will rent.

TOWN OF RICHMOND

Population 1,277

*No. 662 — Farm of 207 acres; located 2 miles from Honeoye P. O., 4 miles from railway station at Hemlock, on line of Lehigh Valley R. R., 2 miles from school and churches, 4 miles from milk station. Highways, in fair condition. Nearest large village, Canandaigua, 10 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,000 feet. Soil, gravelly loam. Acres in meadow, 70; in natural pasture, 30; in timber, 20, second growth chestnut, oak, maple and beech. Acres tillable, 180. Fruit, 4 acres of apples. Best adapted to potatoes, beans, oats, barley and wheat. Fences, wire, good condition. House, 9 rooms, good condition. Outbuildings: main barn, built in 1912, 34x80, gambrel roof; hen house and pig house. Watered by well and stream. Occupied by tenant. Price, \$50 per acre. Terms, one-half cash, balance on mortgage at 5% int. This price will include 2 Holstein cows, drags, plows, cultivators, binder, mowers, horses, harness and other small tools. Address Garfield Real Estate Co., 1 Exchange St., Rochester, N. Y.

TOWN OF SOUTH BRISTOL

Population 965

No. 663 — Farm of 220 acres; located 5 miles from Honeoye P. O., 10 miles from railway station at Hemlock or Naples, on line of Lehigh Valley R. R., $\frac{1}{4}$ mile from school, 5 miles from churches, butter factory, cheese factory and milk station. Highways, part hilly, part State road. Nearest large villages, Canandaigua, 20 miles distant, and Naples, 10 miles distant. Surface of farm, mostly gentle slope, part rolling. Altitude, about 1,600 feet. Soil, mostly loam, a few acres of muck. Acres in meadow, 50; in natural pasture, 90; in timber, 50, oak, pine, chestnut, maple, ash, hickory, elm, etc. Acres tillable, 80. Fruit, old apple orchard, some young peach and pear trees. Best adapted to hay, oats, potatoes, beans, raspberries and apples.

* Indicates farm is in hands of agent or real estate dealer.

Fences, mostly woven wire, some rail, good condition. House, 8 rooms, good condition. Outbuildings: barn, 34x50; barn, 34x48; barn, 34x36; wagon shed, work shop, hen house and evaporator. Watered by well and springs. This farm is 2 miles from Honeoye Lake. Occupied by owner. Reason for selling, advanced age of owner, who has another farm. Price, \$6,500. Terms, \$2,500 cash, balance on bond and mortgage. Address S. S. Williams, Honeoye, N. Y.

TOWN OF VICTOR

Population 2,393

*No. 664 — Farm of 63 acres; located 1½ miles from Victor P. O. and railway station, on line of N. Y. C. R. R., 1

mile from school, churches and milk station. Highways, good. Surface of farm, rolling. Altitude, 700 feet. Soil, sandy loam. Acres in meadow, 15; in natural pasture, 4; in timber, 6, beech and maple. Acres tillable, 50. Fruit, 2½ acres of apples, other fruit for family use. Best adapted to potatoes, corn and grain. Fences, wire, good condition. House, 8 rooms, good condition. Outbuildings: barn, 30x60, with basement; hog pen and hen house. Watered by well and small stream. Occupied by tenant. Reason for selling, owner cannot attend to farm. Price, \$6,000. Terms, one-half cash, balance on mortgage. Address Garfield Real Estate Co., 1 Exchange St., Rochester, N. Y.

ORANGE COUNTY

Area, 781 square miles. Population, 116,001. Annual precipitation, 52.5 inches. Annual mean temperature, 49.3°. Number of farms, 3,935. County seat, Goshen.

This county is situated in the southeast part of the state bordering on New Jersey, the eastern line is bounded by the Hudson River and the southwest by the Delaware River. It is intersected by the Wallkill River and also drained by the Shawangunk and Ramapo Rivers.

The surface is mostly long sloping hills diversified with broad fertile valleys, except in the southeastern part and along the western border. These hills do not attain any great height and are arable to their summit. The eastern region of the county comprises a large part of the highlands of the Hudson. The hills are divided by a valley which opens on the Hudson just below Newburgh, the soil of which is of a limestone formation. Directly west of these highlands extending north and south is the broad Wallkill Valley with its rich soil of black dirt and gravelly loam. To the west of this valley lies another chain of hills, the soil of which is mostly a gravelly loam. Granite, limestone and iron ore are found in this locality. The county ships to New York City millions of gallons of milk and the cities of northern New Jersey can be reached from any part of it in two hours. The total value of all farm property is \$35,516,309, an increase of 44.6 per cent. over that shown in the census of 1900. The average price of improved farm land is \$75.28, an increase of 23.52 per cent. over that of ten years ago. The principal crops reported are corn, 451,179 bushels; oats, 114,215 bushels; rye, 48,960 bushels; potatoes, 288,341 bushels; hay and forage, 133,241 tons. Domestic animals reported: Horses, 10,723; swine, 8,838; sheep, 3,904; poultry, 249,061; dairy cows, 45,882; 20,000 head of cattle other than dairy cattle are also reported. There was produced 30,878,586 gallons of milk, which with the product of 68 milk stations and factories sold for \$3,537,640. The county is traversed with main lines and branches of several important railroads, including the New York, Ontario & Western; Pennsylvania; West Shore and Erie. West Point, the United States Military Academy, is located on the shore of the Hudson River in this county. There are 169 district schools, many excellent high schools, several classical schools, Wallkill Academy and Union schools at Middletown and the Newburgh Institute for Boys at Newburgh. The county has 28 agricultural societies, 60 miles of state and county roads and 1,343 miles of improved highways.

TOWN OF BLOOMING GROVE

Population 2,110

No. 665 — Farm of 140 acres; 1½ miles from Craigville P. O. and railway station, on line of Erie R. R.; ½ mile

from Farmingdale; 5 miles from Goshen. Creamery and school houses near farm. Highways, good. Soil, sandy loam. Acres tillable, 125; timber, 15. Fruit, mostly apples. Occupied by owner. House, 13 rooms, in good condition; also

* Indicates farm is in hands of agent or real estate dealer.

tenant house. Barn, improved cow stable, wagon house and ice house. Watered, house, by well and cistern; fields, by Cromeline Creek and springs. Farm is suitable for dairy, horses, poultry, grain or for a summer home. Has an especially fine water supply. Price, \$8,500. Terms, two-thirds cash. Name and address of owner, Wm. V. Seamen, Locust Lane Farm, Craigville, N. Y.

TOWN OF CHESTER
Population 2,061

No. 666 — Farm of 189 acres; located 2 miles from Chester P. O., and railway station on line of Erie R. R.; 1 mile from school; 2 miles from Presbyterian, Methodist, Episcopal and Catholic churches; 2 miles from butter and cheese factory; 1 mile from milk station. Highways, good. Nearest city, Middletown, population, 15,313, 14 miles distant, reached by rail and highway. Surface of farm, half level and half sloping. Altitude, 500 feet. Soil, clay loam. Acres in meadow, 90; in natural pasture, 95; in timber, 4; oak and chestnut. Acres tillable, 175. Fruit, apples, pears, cherries and grapes. Best adapted to corn and other grains, potatoes, garden truck, etc. House, 32x60, 19 rooms, in good condition. Outbuildings: barn, 32x60; granary, wagon house, shed. Main barn, in good condition; other buildings need repair. Watered, house, by spring; barns, by spring; fields, by 7 never-failing springs. This farm is $1\frac{1}{2}$ miles from Goose Pond Mountain. Occupied by tenant. Reason for selling, to settle an estate. Price, \$15,000. Terms, one-half cash, balance on mortgage. At an expense of \$200, a lake can be made covering 15 acres in front of dwelling. Address Mrs. Anna M. Penoyer, Chester, N. Y.

No. 667 — Farm of 265 acres; located 2 miles from Chester P. O. and railway station, on line of Erie R. R., 1 mile from school, cheese factory and milk station, $1\frac{1}{2}$ miles from Protestant churches. Highways, good. Nearest large village, Goshen, 5 miles distant, reached by highway. Surface of farm, part level, part hilly. Altitude, about 500 feet. Soil, clay, good. Acres in meadow, 165; in natural pasture, 100; in timber, 10, all kinds of hard wood. Acres tillable, 200. Fruits of all kinds. Best adapted to grass and all kinds of grain. Fences, stone, rail and wire. House, 13 rooms,

bath, hot water heat, electric lights, 2 large halls, good condition. Outbuildings: plenty of barns, mostly new; room for 100 cows, good condition. Watered by well, cistern and windmill. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$50,000. Terms, one-half cash. Address, James Seely, Chester, N. Y.

TOWN OF CORNWALL
Population 5,690

No. 668 — Farm of 3 acres; 1 mile from Cornwall P. O. and railway station, on line of W. S. R. R.; 1 mile from school; $\frac{1}{2}$ mile from churches of all denominations. Highways, good. Nearest city, Newburgh, population, 28,000, 5 miles distant, by highway and 4 miles by rail; 8-minute ride by train. Surface of farm, level. Soil, good. Acres tillable, 2. Fruit of various kinds. Best adapted to gardening. Fences, in fair condition. House, 10 rooms, in good condition. Barn, in fair condition. Watered, house, by spring. Near Hudson River and Storm King Mountain. A healthful and beautiful location, with fine view. Occupied by owner. Reason for selling, owner wishes to return to city. Price, on application. Address Abram S. Clark, Cornwall Landing, N. Y., Box 21.

No. 669 — Farm of $10\frac{1}{2}$ acres; $\frac{1}{4}$ mile from Cornwall-on-Hudson P. O.; $1\frac{1}{2}$ miles from railway station at Cornwall, on line of W. S., or N. Y., O. & W. R. R.; $\frac{3}{4}$ mile from school, $\frac{1}{8}$ mile from Episcopal, Catholic, Presbyterian, Methodist and Baptist churches. Highways, good. State road. Nearest city, Newburgh, population, 28,000, 4 miles distant; nearest village, Cornwall, population, 2,700, reached by rail or highway on State road to Newburgh. Surface of farm, level. Soil, good and rich. Acres in meadow, 4; acres tillable, 8. Fruit, apples. Adapted to any crops grown in this climate. House, 12 rooms and cellar, extra coal cellar, heated by hot water, bath, electric lights, in good condition. Telephone. Barn, 30x40, 2 stories, shed and hennery, in fair condition. Running water in house; barn watered by well and stream. Many beautiful shade trees on place; $1\frac{1}{2}$ miles from Hudson River and steamboat landing. Near Highlands of the Hudson. This property is about 2 minutes' walk from New York Military Academy. Reason

for selling, owner desires to move on smaller place. Price, \$5,250. Terms, \$3,750 cash, balance on mortgage. Address Mrs. Eleanor A. Clark, Clark avenue, Cornwall-on-Hudson, N. Y., Box 491.

No. 670 — Farm of 75 acres; $\frac{1}{2}$ mile from Meadow Brook P. O.; $\frac{1}{2}$ mile from railway station at Meadow Brook, on line of O. & W. R. R.; 1 mile from school, Presbyterian and Methodist churches; $\frac{1}{2}$ mile from milk station; 5 miles from condensing plant. Highways, macadamized roads. Nearest city, Newburgh, population, 28,000, 5 miles distant, reached by rail or highway. Surface of farm, slightly rolling. Soil, fertile. Acres in meadow, 45; in natural pasture, 20; in timber, 6; oak, hickory and chestnut; acres tillable, 40. Best adapted to corn, wheat, rye, oats and potatoes, or for a fruit and market gardening farm. Fences, stone. House, 30x50, in good condition. Barn, 28x40, in good condition. Watered, house and barn, by well; fields, by springs and stream; 3 miles from Ramsdale Lake. Occupied by owner. Reason for selling, owner engaged in other business. Price, \$7,000. Terms, easy. Address Charles S. Satterly, Meadow Brook, Orange Co., N. Y.

TOWN OF CRAWFORD

Population 1,659

No. 671 — Farm of 160 acres; located $1\frac{1}{2}$ miles from Thompson Ridge P. O. and railway station, on branch line of Erie R. R.; $1\frac{1}{4}$ miles from school, Protestant and Catholic churches; 3 miles from butter factory, cheese factory and milk condensing plant; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Middletown, 11 miles distant, population, about 15,000, reached by rail and highway. Surface of farm, part level, part rolling. Altitude, about 1,000 feet. Soil, sandy loam, gravelly loam and black dirt. Acres in meadow, 30; in natural pasture, 30; in timber, 20, chestnut and white oak. Acres tillable, 80. Fruit, 60 apple, 8 pear, 8 peach, 6 plum trees; also several grape vines. Best adapted to corn, potatoes, beets, oats, wheat, rye and hay. Fences, mostly wire, good condition. House, 32x30, 2 stories, large attic, addition, 18x24, 13 rooms. Outbuildings: barn, 132x24; addition, 24x12; wagon house, 24x24; car-

riage house, 20x14; large hen house; wood house, pig pen, ice house; milk house and smoke house. Watered, house and barn, by never-failing well; fields, by springs and brooks. Occupied by owner and tenant. Reason for selling, scarcity of help. Price, \$7,000. Terms, \$4,000 down, balance on mortgage. Address Robt. C. Gillespie, Thompson Ridge, N. Y.

*No. 672 — Farm of 164 acres; located 4 miles from Stony Ford P. O. and railway station, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school, 4 miles from churches and milk station. Highways, good. Nearest large village, Middletown, 8 miles distant, reached by highway. Surface of farm, rolling. Soil, limestone. Acres in meadow, 40; in natural pasture, 90; in timber, 34, hard wood. Acres tillable, 120. Fruit, apples, pears, peaches, etc. Best adapted to grass, grain and fruit. Fences, stone wall and wire, good condition. House, 8 rooms, good condition. Outbuildings: fine new barn, large silo, wagon house and hen house. Watered by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,000. Owner will sell stock and tools if desired. Address E. Brionne & Co., 23 Duane St., New York, N. Y.

TOWN OF GREENVILLE

Population 644

No. 673 — Farm of 106 acres, 3 miles from Westtown P. O. and railway station, on line of N. Y., S. & W. R. R.; State road. Good loam soil. Acres in meadow, 40; acres tillable, 100; acres natural pasture, 60; acres timber, 1, oak; 35 apple and 10 pear trees. Occupied by owner. Altitude, 965 feet. Fences, wire and stone, in good condition; 10-room house, in good condition. Barn, 30x136, in good condition; has stable for 40 cows and 9 horses, with a large wagon house; has running water, with individual buckets for cows. Watered by well, cistern and spring. This is one of the best dairy farms in Orange County and is within each reach of a good milk market over a State road. Reason for selling, advanced age of owner. Price, \$5,000. Terms, 30% cash, balance on bond and mortgage. Name and address of owner, J. W. Eaton, Westtown, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

No. 674—Farm of 10 acres, 2 miles from Minisink P. O.; $3\frac{3}{4}$ miles from Westtown railway station, on line of N. Y. S. & W. R. R.; State road. Good loam soil. Acres timber, 1, hickory; 100 apple and 10 pear trees. Best adapted to corn, rye and hay. Occupied by owner. Altitude, 1,095 feet. Fences, wire and stone, in good condition. Large 14-room house, cost, \$8,000, good condition; 1 barn, 42x42; carriage house, 30x36. This farm could keep a dairy of 10 cows and team. State road to railroad. Price, \$3,000. Terms, 30% cash, balance on mortgage. Name and address of owner, J. W. Eaton, Westtown, N. Y.

No. 675—Farm of 85 acres; 2 miles from Minisink P. O.; $4\frac{1}{2}$ miles from Westtown railway station, on line of N. Y. S. & W. R. R.; $\frac{1}{2}$ mile from school; $\frac{1}{2}$ mile from State road. Loam soil. Acres in meadow, 30; acres tillable, 60; acres natural pasture, 55; acres timber, $\frac{1}{2}$, chestnut and maple; 50 apple, 10 cherry trees; also some pears and plums. Best adapted to corn, oats and hay. Farm contains about 25 acres of black dirt, suitable for lettuce, onions or celery. Occupied by owner. Altitude, 1,000 feet. Fences, stone and wire, in good condition; 6-room house, stone, in good condition. Barn, 30x80. This would make a good dairy or poultry farm. Watered by springs, well and running stream. Reason for selling, advanced age of owner. Price, \$3,500. Terms, 40% cash, balance on mortgage. Name and address of owner, J. W. Eaton, Westtown, N. Y.

TOWN OF HAMPTONBURGH
Population 1,168

*No. 676—Farm of 98 acres; located 3 miles from Goshen P. O. Surface of farm, level. Soil, loam. Acres in meadow, 40; in natural pasture, 50; in timber, 8, oak, chestnut and hickory. Acres tillable, 90. Fruit, apples, pears and plums. Best adapted to grass, grain, peaches, grapes, etc. Fences, wire, good. House, 9 rooms, first-class condition; 2 good tenant houses. Outbuildings, 2 large barns, 1 for cattle and hay, 1 for horses and hay. Watered by springs and creek. Occupied by owner. Price, \$10,000. Terms, one-half cash, 19 cows, 3 horses, all tools, wagon, etc., included in above price. Address E. Brionne & Co., 23 Duane street, New York, N. Y.

TOWN OF MONTGOMERY

Population 7,439

No. 677—Farm of $2\frac{1}{2}$ acres; located 3 miles from Thompson Ridge P. O., R. D. 3, and railway station on line of Erie R. R.; $1\frac{1}{2}$ miles from school; 3 miles from Presbyterian church; 3 miles from milk station. Highways, mostly level. Nearest village, Montgomery, population 941, 6 miles distant, reached by highway. Surface of farm, slightly rolling, some level land. Altitude, 500 feet. Acres in meadow, 2; in natural pasture, $\frac{1}{2}$. Acres tillable, 2. Fruit, 1 peach, 7 plum and 4 apple trees. Best adapted to truck gardening. Fences, wood and stone, in good condition. House, 6 rooms, recently painted and papered. Outbuildings, barn, poor condition; hen house, 10x12, new. This farm is 6 miles from Wallkill River. Occupied by owner. Reason for selling, desires larger farm. Price, \$650. Terms, \$500 cash, balance on easy terms. Address Ferd Greenwald, Montgomery, N. Y., R. D. 3.

No. 678—Farm of 32 acres; located 1 mile from Montgomery P. O., R. D. 3, and railway station, on lines of Erie, N. Y., O. & W., and Wallkill Valley R. R.; school near by; 1 mile from Catholic, Presbyterian, Methodist and Episcopal churches; 1 mile from butter factory and milk station. Highways, excellent. Nearest village, Walden, population 4,004, $2\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam and gravel. Acres in meadow, 14; in natural pasture, 18. All tillable. Best adapted to grain and hay. Fences, woven and plain wire, rails, in good condition. House, 10 rooms, new, heated. Barns, 24x42, new, concrete floors. Watered, house, by cistern and artesian well; barns, by cistern; fields, by small brook. This farm is 7 miles from Orange Lake. Occupied by tenant. Reason for selling, owner has too much land. Price, \$5,000. Terms, 30% cash, balance on mortgage. Address J. M. Wilkin, Montgomery, N. Y. Owner will rent.

*No. 679—Farm of 10 acres; located $\frac{1}{2}$ mile from Montgomery P. O., R. D., and railway station, on lines of Erie, N. Y., O. & W., and Wallkill Valley R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from churches of all denominations; $\frac{3}{4}$ mile

* Indicates farm is in hands of agent or real estate dealer.

from creamery and milk station. Highways, State road. Nearest village, Walden, population 4,004, 3 miles distant, reached by rail and highway. Soil, gravel loam. All tillable. Best adapted to grain, hay, etc. Fences, rail and wire, in good condition. House, 8 rooms, 24x28, heated, new. Outbuildings, henery. Watered, house, by well; fields, by brook. This farm is 7 miles from Orange Lake. Reason for selling, owner has too much land. Price, \$2,800. Terms, 40% cash, balance on mortgage. There are also sand and gravel banks on this farm. Address J. M. Wilkin, agent, Montgomery, N. Y. Owner will rent.

TOWN OF MT. HOPE

Population 1,786

No. 680 — Farm of 140 acres; 2 miles from Guymard P. O. and railway station, on line of E. R. R.; $\frac{3}{4}$ mile from school; 4 miles from churches; 2 miles from milk station; 4 miles from milk condensing plant. Highways, good. Nearest large village, Otisville, population 1,000, reached by highway, 4 miles distant. Surface, level. Soil, gravel. Acres in meadow, 50; natural pasture, 40; timber, 6, oak and chestnut; acres tillable, 44. Fruit, about 50 apple trees. Best adapted to wheat, corn, rye, oats and buckwheat. Large house and small tenant house, good condition. Outbuildings: barn, 28x80, with addition, 16x30; inclosed shed, 15x60, in fair condition; wagon and corn house. Watered by well, springs and running water. Occupied by owner. This farm will keep from 25 to 30 cows; well watered; adapted to fruit raising; can be worked by machinery. Price, \$6,500. Terms, $\frac{1}{2}$ cash. Address W. W. Clark, Otisville, N. Y.

No. 681 — Farm of 75 acres; 2 miles from Guymard P. O. and railway station, on line of Erie R. R.; $\frac{3}{4}$ mile from school; 4 miles from churches; 2 miles from milk station; 4 miles from milk condensing plant. Highways, good. Nearest large village, Otisville, population about 1,000, 4 miles distant, reached by highway. Surface, level. Soil, gravel. Acres in meadow, 40; natural pasture, 15; acres tillable, 20. Fruit, apples. Best adapted to wheat, corn, rye, oats and buckwheat. Fences, stone wall, fair condition. House, large; also tenant house, good condition. Outbuildings: barn, 28x80; addition, 16x20; shed, 15x

60; wagon and corn house, fair condition. Watered by well and springs. Occupied by owner. Reason for selling, owner has 2 farms and cannot attend to both of them. Price, \$5,000. Terms, $\frac{1}{2}$ cash. Address W. W. Clark, Otisville, N. Y.

No. 682 — Farm of 113 acres; located 3 miles from Otisville P. O. and railway station, on line of Erie R. R.; 1 mile from school and Protestant church; 3 miles from milk station. Highways, good. Nearest city, Middletown, 7 miles distant, population about 15,000, reached by highway. Surface of farm, slightly rolling. Altitude, 900 feet. Soil, some gravel and clay loam, a few acres of black dirt. Acres in meadow, 25; in natural pasture, 35; in timber, 13, oak and chestnut. Acres tillable, 40. Fruit, 40 apple trees, a few plums, pears and cherries. Best adapted to dairying, grain and vegetables. Fences, stone and wire. House, 12 rooms, good condition. Outbuildings: barn for 20 cows, 4 horses and storage for hay, grain, etc.; wagon house, hen house and tool shed. Watered, house by well, barn by trough, fields by springs and brook. Ice pond near barn. Occupied by tenant. Reason for selling, owner has other farms and cannot attend to so many. Price, \$6,000. Terms, $\frac{1}{2}$ down, balance on bond and mortgage. Address Albert Manning, Otisville, N. Y.

No. 683 — Farm of 128 acres; located 7 miles from Middletown P. O., R. D.; 4 miles from railway station at Otisville, on line of Erie R. R.; $\frac{1}{2}$ mile from school and churches; 4 miles from milk station and condensing plant. Highways, good. Nearest city, Middletown, population 15,313, reached by rail and highway. Surface of farm, comparatively level. Altitude, 900 feet. Soil, heavy loam. Acres in meadow, 12; in natural pasture, 30; in timber, 20, chestnut and oak. Acres tillable, 60. Fruit, 30 apple, 12 peach and 10 pear trees. Adapted to all farm crops. Fences, stone and wire. House, 60x30, fine basement, in good condition. Outbuildings: barn, 65x35; cow barn, 50x25; hen house, granary and ice house. Watered: house and barns by well. The Shawangunk river runs through this farm. Occupied by owner. Reason for selling, ill health. Price, \$7,000. Terms, \$4,000 cash, balance on mortgage. All stock and farm-

ing implements are included in the price of the farm. Address A. L. Saxton, Middletown, R. D. No. 1.

No. 684—Farm of 117 acres; located 2 miles from Otisville P. O. and railway station, on line of Erie R. R.; 1 mile from school; 2 miles from Methodist, Catholic and Presbyterian churches; 2 miles from milk station. Highways, good. Nearest city, Middletown, population 15,313, 9 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,050 feet. Acres in meadow, 15; in natural pasture, 30; in timber, 30, oak and chestnut. Acres tillable, 42. Fruit, 50 apple, 5 plum, 6 cherry and 8 pear trees. Best adapted to corn, wheat, rye, oats and buckwheat. Fences, stone and wire, in good condition. House, 10 rooms, in good condition. Outbuildings: large barn, milk house, corn crib, ice house, hen house, all in good condition. Watered: house by running spring water, barns by running water, fields by springs. Occupied by owner. Reason for selling, to settle an estate. Price, \$6,500. Terms, \$3,500 cash, balance on mortgage. There is also $\frac{1}{2}$ acre of strawberries, raspberries and grapes on this farm. Address Mrs. Emily A. Fuller, Otisville, N. Y., Box 208.

TOWN OF NEWBURGH

Population 5,132

* No. 685—Farm of 40 acres; located 3 miles from Newburgh P. O. and railway station, on line of West Shore R. R.; 1 mile from school; 2 miles from churches; 2 miles from condensing plant. Highways, good. Nearest city, Newburgh, population 27,805, 3 miles distant, reached by highway. Surface of farm, rolling. Altitude, 200 feet. Soil, sandy loam. Acres in meadow, 5; in natural pasture, 5. Acres tillable, 35. Fruit, 3,000 peach, 200 pear trees, 6,000 grape vines, 15,000 currant bushes, apples, etc. Best adapted to fruit. Fences, wire. House, 8 rooms, slate roof. Barn in good condition. Watered: house by well, fields by spring. This farm is 2 miles from the Hudson River. Occupied by owner. Price, \$7,000. Terms, \$3,000 cash, balance on mortgage. Address J. P. Christensen, agent, 320 Fifth Avenue, New York City.

* No. 686—Farm of 35 acres; 6 miles from Newburgh P. O. and railway station, on line of West Shore R. R.; 1 mile from school; $\frac{1}{2}$ mile from church; 1 mile from milk station. Highways, good. Nearest city, Newburgh, population 27,805, 6 miles distant, reached by highway. Altitude, 200 feet. Soil, sandy loam. Acres in meadow, 3; in natural pasture, 5. Acres tillable, 25. Fruit, apples, pears, peaches, cherries, plums, etc. Best adapted to hay, fruit, grain, etc. Fences, wire. House, 16 rooms, in fair condition. Outbuildings: barn, 60x15; another barn, hen house, brooder, etc. Watered: house by cistern and well. This farm is 2 miles from Orange Lake. Reason for selling, ill health. Price, \$6,000. Terms, \$2,000 cash, balance on mortgage. Address J. P. Christensen, agent, 320 Fifth Avenue, New York City.

TOWN OF NEW WINDSOR

Population 2,667

No. 687—Farm of 127 $\frac{1}{2}$ acres; 2 miles from Little Britain P. O., R. D. No. 1; 3 miles from railway station at Little Britain, on line of N. Y., O. & W. R. R.; 2 miles from school; 2 miles from church; 2 miles from milk station and 4 miles from condensing plant. Highways, good. Nearest city, Newburgh, population 27,805, 8 miles distant, reached by rail or highway. Surface of farm, rolling and level. Altitude, 500 feet. Soil, heavy loam. Acres in meadow, 20; in natural pasture, 30; in timber, 30, ash, maple and oak. Acres tillable, 70. Fruit, 70 apple, 300 peach, 10 pear, 12 plum and 12 cherry trees, strawberries and grapes. Best adapted to hay and fruit. Fences, stone and wire, in fair condition. House, 33x30, 10 rooms, in good condition. Outbuildings: barn, 90 x18; barn, 50x16; cement stable for 15 cows, in good condition. Watered: house and barns by well, fields by brook and springs. This farm is 8 miles from the Hudson River. Occupied by owner. Reason for selling, wants to go south. Price, \$5,500. Terms, \$3,000 cash, balance on mortgage at 5%. Address John A. Ballard, Rocklet, R. F. D. No. 1, N. Y.

* No. 688—Farm of 184 acres; located 2 $\frac{1}{2}$ miles from Rocklet P. O., R. D. No. 1; 2 $\frac{1}{2}$ miles from railway station

* Indicates farm is in hands of agent or real estate dealer.

at Little Britain, on line of N. Y., O. & W. R. R.; $1\frac{1}{4}$ miles from school; 2 miles from churches and 2 miles from milk station. Highways, good. Nearest city, Newburgh, population 27,805, 9 miles distant, reached by rail or highway. Surface of farm, rolling. Altitude, 500 feet. Soil, clay and silt loam. Acres in meadow, 20; in natural pasture, 40; in timber, 30, maple, hickory, ash, etc. Acres tillable, 80. Fruit, about 100 apple trees. Best adapted to hay, potatoes, maize, rye, barley, fruit, etc. Fences, rail and wire, in good condition. House, 12 rooms, in first class condition, bath and other improvements. Outbuildings: 2 large hay barns, horse stable, cow barn, carriage house, tenant house, ice house, granary, poultry house, work shop. Watered: house by well and cistern, barns by well, fields by spring and pond. This farm is 9 miles from the Hudson River. Reason for selling, old age of owner. Price, \$9,000. Terms, \$5,000 cash, balance on bond and mortgage. Address J. P. Christensen, agent, 320 Fifth avenue, New York city.

* No. 689—Farm of 160 acres; located $\frac{1}{4}$ mile from Little Britain P. O.; $\frac{1}{4}$ mile from railway station at Little Britain, on line of N. Y., O. & W. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{4}$ mile from churches and $\frac{1}{4}$ mile from milk station. Highways, good, mostly state road. Nearest city, Newburgh, population 27,805, 6 miles distant, reached by rail or highway. Surface of farm, rolling and level. Altitude, 500 feet. Soil, gravel and silt loam. Acres in meadow, 20; in natural pasture, 20; in timber, 4. Acres tillable, 130. Fruit, apples, pears, cherries, peaches, grapes enough for own use. Best adapted to hay, corn, rye, potatoes, etc. Fences, stone and wire. House, large, hot and cold water, bath, etc., in good condition. Outbuildings, hay barn, horse stable, cow stable, hog house, smoke house, granary, ice house, garage, wagon house, tool house, in first-class condition. This farm is 6 miles from the Hudson river. Occupied by owner. Reason for selling, wants a smaller farm. Price, \$12,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address Westcott & Company, Inc., agents, Newburgh, N. Y.

* No. 690—Farm of $127\frac{1}{2}$ acres; located 2 miles from Rocklet P. O. and

railway station on line of N. Y., O. & W. R. R.; 2 miles from school; 2 miles from churches and 2 miles from milk station. Highways, good. Nearest city, Newburgh, population 27,805, 8 miles distant, reached by highway. Surface of farm, rolling. Acres in meadow, 40; in natural pasture, 40; in timber, 47, oak, chestnut, hickory, etc. Acres tillable, Fruit, 70 apple, 300 peach, 10 pear and 12 cherry trees. Best adapted to hay, grain and fruit. Fences, wire, in good condition. House, 10 rooms in good condition. Outbuildings, good barns, and other buildings. Watered, house, fields and barns by springs. Occupied by owner. Price, \$6,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Three cows, 2 horses, wagons, machinery, etc., are included in the price of farm. Address E. Brionne & Co., 23 Duane street, New York city.

TOWN OF WALLKILL

Population 2,578

* No. 691—Farm of 110 acres; located $\frac{1}{2}$ mile from Stony Ford P. O. and railway station on line of N. Y. O. & W. R. R.; $\frac{1}{2}$ mile from school and churches; $\frac{1}{2}$ mile from milk station. Highways, good. Nearest village, Goshen, population 3,081, 4 miles distant, reached by rail or highway. Surface of farm, level. Soil, loam. Acres in meadow, 40; in natural pasture, 60; in timber, 10, oak, chestnut, hickory. Acres tillable, 100. Fruit, apples, pears, peaches, plums, etc. Best adapted to hay, grain, potatoes, fruit, etc. Fences, wire, in good condition. House, 12 rooms in fine condition. Outbuildings, several barns, hen house, wood house. Price, \$10,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Twelve cows, 3 horses, 40 tons hay, wagons, machinery, etc., included in price of farm. Address E. Brionne & Co., 23 Duane street, New York city.

* No. 692—Farm of 50 acres; located 3 miles from Middletown P. O. and railway station on line of Erie and N. Y. O. & W. R. R.; 1 mile from school; 3 miles from churches of all denominations; $1\frac{1}{2}$ miles from milk station; 3 miles from condensing plant. Highways, good. Nearest city, Middletown, 3 miles distant, population 15,313, reached by highway or rail. Surface of farm, hilly and rolling. Soil, sandy loam. Acres in meadow, 35; in natural pasture, 10;

* Indicates farm is in hands of agent or real estate dealer.

in woodland, 5, small maples, etc. Acres tillable, 35. Fruit, 25 apple trees, cherries and small fruits. Best adapted to hay, rye, corn, etc. Fences, stone and wire. House, 8 rooms, in fair condition. Outbuildings, hay barn, including horse and cow stable, in fair condition; poultry house and granary, in good condition. Watered, house, by well; fields, by springs. The Wallkill river runs through this farm. Occupied by owner. Reason for selling, ill health. Price, \$5,000. Terms, \$3,000 cash, balance on mortgage. Address Westcott & Company, Inc., agents, Newburgh, N. Y.

TOWN OF WARWICK
Population 7,141

No. 693 — Farm of 100 acres; 2 miles from Greenwood Lake P. O. and station, on line of Erie R. R.; 2 miles from school and Protestant churches. All milk can be sold to hotels in vicinity. Highways, good. Nearest village, Greenwood Lake, population 200, 2 miles distant. Surface, fairly level. Soil, loam and gravel. Thirty acres in meadow; 50 acres of natural pasture; 20 acres of timber; 30 acres tillable. Fifty apple, 20 pear and 10 plum trees. Adapted to hay crops. Fences, in fair condition. House, 32x30, in good condition. Also tenant house. Church, 26x36, which could be made into a house. Barn, 30x60; wagon house, 28x30, shop attached; ice house, 20x20; hog house, 12x14; good stone smoke house; wood house. The buildings on this farm are nearly new. House has well water; barns have brook near, and fields are well watered. Greenwood Lake is 5 minutes' walk from farm. Occupied by tenant. Reason for selling, owner going into other business. Price, \$4,000. Terms, $\frac{1}{2}$ cash and $\frac{1}{2}$ remain on mortgage. Address James Hall, Greenwood Lake, N. Y.

No. 694 — Farm of 125 acres; located $\frac{1}{4}$ mile from New Milford P. O. and railway station on line of Lehigh Valley and N. Y. C. & H. R. R.; $\frac{1}{2}$ mile from school and churches; 1 mile from milk station. Highways, good. Nearest village, Warwick, population 2,318, 4 miles distant, reached by rail or highway. Surface of farm, rolling. Altitude, 650 ft. Soil, clay loam. Acres in meadow, 70; in natural pasture, 35; in timber, 15, chestnut and oak. Acres tillable, 100. Fruit, 30 apple trees. Best

adapted to fruit, dairying and grain. Fences, stone, in good condition. House, large, 14 rooms, in good condition. Outbuildings, barn, 30x70; wagon house, 24x40; barn, 30x40; ice house; work shop, hen house. Watered, house, by well; barns, by springs; fields, by springs and streams. Occupied by tenant. Reason for selling, ill health of owner. Price, \$8,600. Terms, $\frac{1}{2}$ cash, balance on mortgage at $4\frac{1}{2}\%$. Address Harry Vail, New Milford, N. Y.

*No. 695 — Farm of 117 acres; located 2 miles from Florida P. O. and railway station on line of Erie R. R.; 1 mile from school; 2 miles from churches of all denominations; 2 miles from milk station. Highways, good. Nearest village, Goshen, population 3,081, 6 miles distant, reached by rail or highway. Surface of farm, rolling smooth land. Soil, loam. Acres in meadow, 45; in natural pasture, 55; in timber, 17, oak, chestnut, hickory, etc. Acres tillable, 100. Fruit, 3 peach orchards, 12 trees, 1 apple orchard, also cherries, grapes, etc. Best adapted to hay, grain, fruit, potatoes, etc. Fences, wire, in good condition. Houses, 1 large house in fine condition; 1 tenant house. Outbuildings, barns, granary, ice house, new silo, large hen house. Watered, house, barns and fields by springs. Occupied by owner. Reason for selling, other business. Price, \$11,500. Terms, easy. Address E. Brionne & Co., 23 Duane street, New York city.

No. 696 — Farm of 160 acres; located 1 mile from New Milford P. O. and railway station on line of Lehigh & Hudson R. R.; 1 mile from school; $\frac{1}{2}$ miles from church 1 mile from milk station. Highways, good. Nearest village, Warwick, population 2,318, 4 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 550 ft. Soil, slate and loam. Acres in meadow, 50; in natural pasture, 10; in timber, 10; rock and white oak. Acres tillable, 150. Fruit, 74 acres peaches and apples, produced last year net profit of \$4,000. Best adapted to fruit and dairying. Fences, wire, in good condition. House, 13 rooms, slate roof, in fine condition. Outbuildings, 3 barns, 28x34, 30x70, 22x40; granary, 28x40; tenant house, 5 rooms and all necessary outbuildings. Watered, house, by well; barns, by springs; fields by springs and streams.

* Indicates farm is in hands of agent or real estate dealer.

This farm is 3 miles from Pochuck Mountains. Occupied by owner. Price, \$20,000. Terms, to suit purchaser. Address Harry Vail, New Milford, N. Y.

No. 697 — Farm of 32 acres; located 1 mile from New Milford P. O. and railway station on line of Lehigh and Hudson R. R.; 2 miles from school; $1\frac{1}{2}$ miles from churches. Highways, good. Surface of farm, rolling. Altitude, 520 ft. This land is all planted to fruit, about 3,000 peach and apple trees. Best adapted to fruit. Fences, wire, in good condition. No buildings. Watered by springs. Occupied by owner. Price, \$3,000. Terms, \$1,000 down, balance at \$300 per year, interest at 5%. This is a good piece of land for some city man to build bungalow on. Address Harry Vail, New Milford, N. Y.

No. 698 — Farm of 35 acres; located 1 mile from New Milford P. O. and railway station on line of Lehigh and Hudson R. R.; 1 mile from school; $1\frac{1}{2}$ miles from churches; 1 mile from milk station. Highways, good. Nearest village, Warwick, population 2,318, 4 miles distant, reached by rail and highway. Surface of farm, nearly level. Altitude, 550 ft. Soil, sandy loam. Acres in meadow, 31; in natural pasture, 4; in alfalfa, 8. Acres tillable, 31. Fruit, apples, cherries, pears, etc., for family use. Best adapted to alfalfa and fruit. Fences, stone and wire in good condition. House, 28x34, slate roof, in first-class condition. No barn. This farm is 5 miles from Wickham Lake. Occupied by tenant. Price, \$4,000. Terms, $\frac{1}{2}$ cash, or less, balance on mortgage at 5%. Address Harry Vail, New Milford, N. Y.

ORLEANS COUNTY

Area, 399 square miles. Population, 32,000. Annual precipitation, 32.31 inches. Annual mean temperature, 48.9°. Number of farms, 2,780. County seat, Albion.

This county is located in the western part of the state, on Lake Ontario, which forms its northern boundary.

The surface of the county is generally level with gentle undulations to the south. A strip of land about eight miles in width extending inland consists of sandy gravelly loam, then comes a strip about four miles in width with elevation of about 200 feet, the soil of which is a black muck and gravelly loam. The southern part of the county consists of another strip of land about six miles in width, elevation about 500 feet, the soil of which consists chiefly of clay, muck and limestone. On these soils are grown enormous quantities of vegetables of every variety and the apple, peach, pear, plum and quince orchards are very extensive and are kept in the most excellent condition. The county contains valuable quarries of Medina sandstone and Niagara limestone, both of which are choice building stone. There has been recently published by Cornell University a bulletin giving an orchard survey of this county and of Wayne and Tompkins Counties, which can be had upon application. In the production of dry beans, Orleans County leads every other county in the United States, the yield in 1910 being 291,191 bushels. Some of the leading crops in the same year were corn, 375,583 bushels; oats, 584,442 bushels; wheat, 527,634 bushels; barley, 56,496 bushels; potatoes, 571,608 bushels; hay and forage, 57,749 tons. The total valuation of farm property is \$26,551,582, an increase of 70.3 per cent. over that of 1900. The average value of improved land is \$96 per acre. The average price per acre of farm land alone is \$63 per acre. This enormous advance in land values, throughout the county has been caused chiefly by the rapid development of the fruit industry, which has grown to large proportions; Orleans, Niagara, Monroe and Wayne Counties being perhaps the chief contributors to the apple product of New York State for 1912, which totals 6,900,000 barrels.

Domestic animals reported are dairy cows, 7,247; horses, 10,924; swine, 10,960; sheep, 59,766; poultry, 134,740; milk production, 3,268,397 gallons, all of which except that used by one creamery was shipped to Niagara Falls and Buffalo, for which the farmers received \$195,186.

The county is traversed from east to west by the Erie Canal, New York Central & Hudson River railroad and Rome, Watertown & Ogdensburgh railroad, also all trunk lines. The county has 134 district schools with a union school system and academies at Albion and Medina. There are 42 miles of state and county roads and 546 miles of other improved highways. The agricultural organizations of the county are 1 Pomona grange, 10 subordinate granges, a county agricultural society and county fruit growers' association.

TOWN OF BARRE

Population 1,812

No. 699 — Farm of 216 acres; located 5 miles from railway station at Elba, on line of W. S. R. R.; $1\frac{1}{2}$ miles to Barre Center, a small country village, containing grocery, church, blacksmith shop, etc. Nearest large village, Albion, 6 miles distant. Surface of farm, level. Soil, clay loam and muck; 90 acres of muck on farm. Acres tillable 187, balance of farm in woodlot. Fences, woven wire, good. House, built of stone, good repair. Outbuildings, barn, 30x74, with sheep shed attached; hen and hog house, 20x50; horse barn and tool shed. Fruit, 16 acres of pears; 4 acres of apples; also plums; grapes and peaches. Occupied by owner. For price and terms address G. A. Parsons, Albion, N. Y.

TOWN OF CARLTON

Population 2,259

* No. 700 — Farm of 21 acres; located $\frac{1}{4}$ mile from post-office and railway station at Waterport on line of R., W. & O. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{4}$ mile from churches. Highways, good. Nearest large village, Albion, population 5,016, 8 miles distant, reached by rail or highway. Surface of farm, rolling. Soil, sandy loam. Acres in meadow, 3. Acres tillable, 21. Fruit, 7 acres apples, 10 acres pears. Best adapted to fruit. Fences, wire and rail. House, 8 rooms. No outbuildings. Watered, house, by well; fields, by creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$4,500. Terms, \$1,500 down, balance on mortgage at 5%. Address F. H. Stafford, agent, Medina, N. Y.

TOWN OF CLARENDON

Population 1,335

* No. 701 — Farm of 100 acres; located 4 miles from Byron Center P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{4}$ mile from school; 4 miles from milk station and Protestant churches. Highways, good. Nearest large village, Holley, 6 miles distant, reached by highway. Surface of farm, level. Altitude, 630 feet. Soil, gravelly loam. Acres in meadow, 40; in natural pasture, 10; in timber, 20, beech, maple, second growth. Acres tillable, 70. Fruit, 4 acres of apples, 1 acre of pears, 1 acre mixed fruit. Best adapted to

general farming. Fences, wire, good condition. House, 9 rooms, built 1903, tenant house, good condition. Outbuildings, barn with gambrel roof, 36x75, basement, hen house and large hog house. Watered by well. Occupied by owner. Reason for selling, children have left home. Price, \$7,500. Address Garfield Real Estate Co., 1 Exchange street, Rochester, N. Y.

* No. 702 — Farm of 96 acres; located 4 miles from Holley P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from Protestant church; 4 miles from butter factory, cheese factory and milk station. Highways, State road. Surface of farm, rolling. Soil, loam. Acres in meadow, 10; in natural pasture, 10; in timber, 10, hard maple and elm. Acres tillable, 80. Fruit, 6 acres of bearing apples. Best adapted to beans, wheat and hay. Fences, wire, good condition. House, 10 rooms. Large barn with basement. Watered by well and spring. Occupied by owner. Reason for selling, owner desires to retire from business. Price, \$11,000. Terms, reasonable payment down, balance on long time. Address W. C. Hill, agent, Holley, N. Y.

* No. 703 — Farm of 147 acres; located 6 miles from Holley P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{4}$ mile from school; 2 miles from Protestant church; 6 miles from cheese factory. Surface of farm rolling. Soil, limestone. Acres in meadow, 30; in natural pasture, 40; in timber, 15, elm, maple and ash. Acres tillable, 125. Fruit, 12 acres of apples. Best adapted to beans, wheat, potatoes and cabbage. Fences in fair condition. House, 8 rooms, good condition. Large basement barn. Watered by well and spring. Reason for selling, owner in other business. Price, \$13,000. Terms, \$6,000 cash, balance to suit purchaser. Address W. C. Hill, agent, Holley, N. Y.

TOWN OF GAINES

Population 1,946

* No. 704 — Farm of 137 acres; located $1\frac{1}{2}$ miles from Fancher P. O. and railway station, on line of N. Y. C. & H. R. R. R.; $\frac{1}{4}$ mile from B. L. & R. trolley; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from

* Indicates farm is in hands of agent or real estate dealer.

churches and milk station. Highways, good. Nearest large village, Holley, 5 miles distant, reached by rail and highway. Surface of farm, level. Altitude, 500 feet. Soil, loam. Acres in meadow, 30; in natural pasture, 10; in timber, 10, beech, maple and elm, second growth. Acres tillable, 110. Fruit, old apple orchard; other fruit for family use. Best adapted to general farming. Fences, wire, good condition. House, 10 rooms, good condition. Outbuildings, barn, 36x90, with basement, gambrel roof. Watered by well. Occupied by tenant. Reason for selling, to close an estate. Price, \$100 per acre. Terms, \$4,000 cash, balance on mortgage. Address Garfield Real Estate Co., 1 Exchange street, Rochester, N. Y.

TOWN OF MURRAY

Population 3,969

*No. 705 — Farm of 200 acres; located 1½ miles from Fancher P. O. and railway station, on line of N. Y. C. & H. R. R.; ¼ mile from B. L. & R. trolley line; ¼ mile from school; 1¼ miles from churches; 1¼ miles from milk station. Highways, good. Nearest village, Holley, population 1,679, 5 miles distant, reached by rail or highway. Surface of farm, level. Altitude, 500 feet. Soil, loam. Acres in meadow, 50; in natural pasture, 20; in timber, 15, beech, maple, elm, second growth. Acres tillable, 150. Fruit, 1,800 peach trees, old apple orchards; other fruit for family use. Best adapted to general crops and fruit. Fences, wire, in good condition. House, 10 rooms, in fair condition. Outbuildings, main basement barn, gambrel roof, 30x60; shop, 14x18; gambrel roof barn, 36x50, with addition, 36x36, for horse barn; hen house, 12x36, in fair condition. Watered, house, barns and fields, by wells. This farm is near the new barge canal. Occupied by tenant. Reason for selling, to settle an estate. Price, \$100 per acre. Terms, \$5,000 cash, balance on mortgage. Address Garfield Real Estate Co., agents, 1 Exchange street, Rochester, N. Y.

TOWN OF RIDGEWAY

Population 6,538

*No. 706 — Farm of 50 acres; located 2 miles from Medina P. O. and railway

station, on line of N. Y. C. and B. L. & R. R. R.; ¼ mile from school; 2 miles from churches of all denominations. Highways, good. Nearest village, Medina, population 5,683, 2 miles distant, reached by highway. Surface of farm, rolling. Soil, 25 acres gravel and 25 acres sandy loam. Acres tillable, 50. Fruit, 6 acres apple orchard. Best adapted to all kinds of crops. House, 2-family, 12 rooms. Outbuildings, 2 barns, 30x50 and 20x30; hen house, 15x30. Watered, house and barns, by wells. Reason for selling, ill health of owner. Price, \$7,000. Terms, \$2,500 cash, balance on mortgage at 5%. Address, F. H. Stafford, agent, Medina, N. Y.

TOWN OF SHELBY

Population 3,945

*No. 707 — Farm of 75 acres; located 4 miles from Medina P. O., R. D. 5, and railway station, on line of N. Y. C. R. R.; ½ mile from school; 1½ miles from Protestant churches. Surface of farm, slightly rolling. Soil, sandy loam and gravel. Fruit, 16 acres of apples. Adapted to all kinds of grain, vegetables and hay. Fences, wire, fair condition. House, 15 rooms, good condition. Outbuilding, basement barn, 30x60; fair condition. Watered, house and barn, by well; fields, by well. Occupied by owner. Reason for selling, to close an estate. Price, \$10,000. Address Stafford Real Estate Agency, Medina, N. Y.

*No. 708 — Farm of 167½ acres, located 4 miles from Medina P. O., R. D. 5, and railway station, on line of N. Y. C. R. R.; ¼ mile from school; 2 miles from Protestant churches. Surface of farm, slightly rolling. Soil, gravel and sandy loam. Acres in timber, 20, hard and soft wood. Acres tillable, 145. Fruit, apples and pears. Adapted to all kinds of grain and hay. Fences, wire, fair condition. House, fair condition, also tenant house. Outbuildings, 2 sets of barns, fair condition; hog pen; corn crib and carriage house. Watered, house, by well; barn, by creek; fields, by wells and springs. Oak Orchard creek borders on west side of farm. Occupied by owner. Reason for selling, ill health of owner. Price, \$8,500. Terms, easy. Address Stafford Real Estate Agency, Medina, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

*No. 709 — Farm of 60 acres; located $6\frac{1}{2}$ miles from Medina P. O. and railway station, on lines of N. Y. C. & B. L. & R. R. R.; $\frac{3}{4}$ mile from school; $1\frac{1}{4}$ miles from churches. Highways, fair. Nearest large village, Medina, $6\frac{1}{2}$ miles distant, population 5,683, reached by highway. Surface of farm, level. Soil, sandy loam. Acres tillable, 59. Fruit, 4 acres apple trees, 40 to 50 years of age. Adapted to all kinds of crops. Fences, in fair condition. House, 8 rooms, in good condition. Barns, 30x40; shed, 18x30; hen house, 16x20, in good condition. Watered, house and barns, by wells, fields, by creek. Occupied by owner. Price, \$3,800. Terms, \$1,500, balance on mortgage payable in 5 years. Address F. H. Stafford, agent, Medina, N. Y.

*No. 710 — Farm of $50\frac{1}{2}$ acres; 3 miles from Medina P. O.; 2 miles from railway station at Middleport, on line of N. Y. C. & H. R. R.; 1 mile from school; 2 miles from churches of all denominations. Highways, good. Nearest large village, Middleport, population 1,530, 2 miles distant, reached by highway. Surface of farm, rolling. Soil, gravelly loam. Fruit, 275 apple and 225 pear trees on this farm. Best adapted to fruit. Fences, wire, in good condition. House, $1\frac{1}{2}$ story, 8 rooms, in good condition. Barns, carriage house, 20x30; hay barn, 30x60; horse barn, 30x40, in good condition. Watered, house, barns and fields, by springs. Occupied by owner. Reason for selling, wants larger farm. Price, \$7,500. Terms, \$3,000 cash, balance in one year at 6%. Address F. H. Stafford, agent, Medina, N. Y.

*No. 711 — Farm of 220 acres; located 6 miles from Middleport P. O. and railway station, on line of N. Y. C. and B., L. & R. R. R.; $\frac{1}{4}$ mile from school; 1 mile from churches and 5 miles from milk station. Highways, good. Nearest village, Middleport, 6 miles distant, population 1,530, reached by highway. Surface of farm, level. Soil, sandy loam. Acres in meadow, 20; in natural pasture,

5; in timber, 20. Acres tillable, 195. Fruit, 7 acres apples. Best adapted to all kinds of crops. Fences, wire. House, 2-story, 10 rooms, and 7-room tenant house, in good condition. Outbuildings, gambrel roof barn, 40x70; horse barn, 30x50; hen house and hog pen. Watered, house, by springs; barns, by well. Reason for selling, to settle an estate. Price, \$18,000. Terms, \$5,000 cash, balance on mortgage at 5%. Address F. H. Stafford, agent, Medina, N. Y.

*No. 712 — Farm of $88\frac{1}{2}$ acres; located 3 miles from Medina P. O. and railway station, on lines of N. Y. C. and B., L. & R. R. R.; 1 mile from school and church. Nearest large village, Medina, population 5,683, 3 miles distant, reached by highway. Surface of farm, rolling. Soil, gravelly loam. Acres in natural pasture, 3; in timber, 4, maple and chestnut. Acres tillable, $88\frac{1}{2}$. Fruit, 250 pear trees. Best adapted to all kinds of crops. Fences, rail and some wire. House, 8 rooms, in good condition. Outbuildings, new gambrel roof basement barn, 40x70; hog pen and hen house, in good condition. Watered, house and barns, by wells. Occupied by owner. Price, \$9,000. Terms, \$2,000 cash, balance on mortgage, payable in 10 years. Address F. H. Stafford, agent, Medina, N. Y.

TOWN OF YATES

Population 2,156

*No. 713 — Farm of 15 acres; located 2 miles from Lyndonville P. O. and railway station, on line of N. Y. C. & H. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches. Highways, good. Nearest village Lyndonville, population 647, 2 miles distant, reached by highway. Soil, sandy loam. Fruit, 1,200 peach trees 5 years old, 139 plum trees 4 years old, 12 quince trees 5 years old and 1 acre of berries. Best adapted to fruit. Fences, wire, in good condition. House, 6 rooms, in good condition. Barn, 20x40, in fair condition. Watered, house and barns by wells. Occupied by tenant. Price, \$3,500. Terms, \$1,600 cash, balance payable in 10 years. Address F. H. Stafford, agent, Medina, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

OSWEGO COUNTY

Area, 962 square miles. Population, 71,664. Annual precipitation, 41.36 inches. Annual mean temperature, 47.3°. Number of farms, 6,319. County seat, Oswego.

This county is located at the east end of Lake Ontario, Oneida Lake and Oneida River forming the southern boundary. It is intersected by the Oswego and Salmon Rivers.

The surface features along Lake Ontario are comparatively level with a soil consisting of a gravelly loam. Farther back in the region drained by the Oswego River the soil is mostly clay loam. The surface is undulating in the eastern part of the county and the soil is a gravelly loam with many scattered beds of muck. In the southern part the surface is rolling, declining to a flat level tract in the region of Oneida Lake, the soil being sandy but fertile. Silurian sandstone, an excellent material for building purposes, constitutes the rock found next to the surface of the soil.

All fruits flourish and the county is noted for its excellent quality of small fruits and apples. During the berry season of strawberries and raspberries, iced berry cars are run daily to New York City, Boston and Philadelphia. Some of the principal crops are corn, 491,706 bushels; oats, 504,314 bushels; buckwheat, 71,394 bushels; potatoes, 907,874 bushels; hay and forage, 166,002 tons. The value of all farm property is \$23,804,151, an increase of 21.5 per cent. during the past ten years. The average price of land only in this county is \$18.27, and the average price of improved land is \$35.97. There are many cheap farms with old orchards that have been planted for fifty and sixty years but have never had any proper treatment that with the application of modern methods of care and marketing would yield abundantly. A notable instance of this has recently occurred. One farm of 100 acres containing an orchard of ten acres, trees planted 54 years, was bought for \$7.50 per acre, and the orchard produced under the first year's cultivation, fertilization, pruning and spraying about \$4,000 worth of apples. The entire farm has been cleared of brush, briars and other growth and set out to orchard.

Domestic animals are reported as follows: Dairy cows, 40,744; horses, 13,529; swine, 13,848; sheep, 6,009; poultry, 251,022; milk production, 20,101,582 gallons. Amount received from the products of 85 milk stations and factories, \$1,888,709.

The county is traversed in various directions by the R., W. & O., N. Y., O. & W., D., L. & W. railroads and by the Oswego Canal together with trolley lines running through the entire length of the county from Syracuse to Oswego. A state normal and training school is located in Oswego and the largest cornstarch factory in the country has its plant in that city, the output being about 33 tons per day. Wheat and buckwheat flour mills are also located there. There are 273 district schools, well located throughout the county, 58 miles of state and county roads and 1,195 miles of graded and improved highways. There are 66 agricultural organizations in the county, which indicate that the farmers are alert as to the best methods of agriculture.

TOWN OF ALBION

Population 1,472

No. 714 — Farm of 113 acres; 1¼ miles from Altmar P. O. and railway station, on line of R., W. & O. R. R.; 1¼ miles from schools and churches. Highways, good. Surface, rolling and level. Soil, rich, stony loam. Acres in meadow, 20; natural pasture, 30; timber, 25, cherry, hemlock, ash, maple and birch; acres tillable, 80. Fruit, 20 apple trees. Best adapted to corn, potatoes, oats, rye, apples and small fruits of all kinds. Fences, stone and wire, good condition. House, 28x22, square roof, addition, 24x16, good condition. Outbuildings, barn, 30x40; stable, 40x14; horse barn, 26x36; hen house, 50x14, cement

floor, modern. Watered, house, by well; fields, by creeks and several springs. Lake Ontario 12 miles distant, Salmon River, 1¼ miles distant. Buildings are in center of farm, surrounded by 23 fine maple trees. Reason for selling, poor health of owner. Price, \$3,500. Terms, cash or part payment. Address Thomas Riley, Altmar, N. Y.

No. 715 — Farm of 43 acres; located ¼ mile from Altmar P. O.; ½ mile from railway station at Altmar, on line of N. Y. C. R. R.; ¼ mile from school, Catholic and Protestant churches; ½ mile from butter factory, cheese factory, milk station and milk condensing plant. Highways, good. Surface of farm, rolling. Altitude, about 600 feet. Soil,

gravel and sand. Acres in meadow, 6; in natural pasture, 20; in timber, 5, second growth. Acres tillable, 15. Fruit, apples. Best adapted to general farming. Fences, in fair condition. House, 18x24, with wing, good condition. Barn, 20x30, fair condition. Watered, by well and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$1,400. Terms, part cash. Address John M. Clauson, Altmar, N. Y.

TOWN OF BOYLSTON
Population 667

No. 716—Farm of 100 acres; located 7 miles from Lacona P. O., R. D. 1, and railway station, on line of R., W. & O. R. R.; 50 rods from school; ½ mile from Catholic church; 2½ miles from butter factory and cheese factory; 7 miles from milk station and milk condensing plant. Highways, good. Surface of farm, level. Altitude, 1,200 feet. Soil, black loam. Acres in meadow, 25; in natural pasture, 25; in timber, 50, beech, birch and maple. Acres tillable, 40. Best adapted to potatoes, oats, buckwheat and corn. Fences, partly wire, good condition. House, 20x26, 2 stories. Outbuildings, barn, 40x60, good condition. Watered, house, by well; barns and fields, by streams. Unoccupied. Reason for selling, ill health of owner. Price, \$1,000. Terms easy. Address Jos. Beech, Lacona, N. Y., R. D. 1. Owner will rent for cash.

No. 717—Farm of 129 acres; located 6 miles from Lorraine P. O., R. D. 2; 9 miles from railway station at Lacona, on line of R., W. & O. R. R.; ½ mile from school; 1 mile from Methodist church; 6 miles from butter factory; 1 mile from cheese factory; 11 miles from milk station and milk condensing plant. Highways, good. Nearest large village, Adams, 11 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 1,100 feet. Soil, black loam. Acres in meadow, 40; in natural pasture, 25; in timber, 64, beech, birch and maple. Acres tillable, 50. Fruit, about 25 apple trees. Best adapted to oats, potatoes, buckwheat and corn. Fences, wire, good condition. House, upright, 20x26, kitchen, 18x24, good. Outbuildings, barn, 30x40, with basement; milk house, 14x16, and hog house, good condition. Watered by well and streams. Occupied by owner. Reason for selling, owner a widow, advanced in years. Price, \$1,000. Terms, part down, balance on time. Address Sarah J. Dempster, Lacona, N. Y., R. D. 2.

No. 718—Farm of 50 acres; located 9 miles from Lacona P. O., R. D. 1, and railway station, on line of R., W. & O. R. R.; 1 mile from school; ½ mile from Catholic church; 7 miles from butter factory, milk station and milk condensing plant; 3 miles from cheese factory. Highways, good. Nearest large village, Adams, 14 miles distant, reached by highway. Surface of farm, level. Altitude, 1,200 feet. Soil, muck and gravel. Acres in meadow, 30; in natural pasture, 10; in timber, 20, hard wood and hemlock. Acres tillable, 25. Fruit, 4 apple trees. Best adapted to oats, corn, potatoes and buckwheat. Fences, wire, good condition. House, 18x26, with addition, good condition. Barn, 22x28, good condition. Watered by well and stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$500. Terms, part down, balance on time. Address Henry Duane, Lacona, N. Y., R. D. 1. Owner will rent.

No. 719—Farm of 159 acres; located 8 miles from Lacona P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; school next to farm; ¾ mile from Catholic and Methodist churches; 2 miles from cheese factory; 8 miles from milk station. Highways, good. Nearest large village, Adams, 12 miles distant, reached by highway. Surface of farm, slightly rolling. Soil, gravelly loam. Acres in meadow, 30; in natural pasture, 60; in timber, 69, hard and soft. Acres tillable, 70. Best adapted to potatoes, oats, buckwheat and hay. Fences, barbed wire, fair condition. House, large, 1½ stories, fair condition. Outbuildings, barn, 30x40, with basement; barn, 32x24, fair condition. Watered by well and streams. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,000. Terms, one-third down, balance on easy terms. Address Amos E. Ridgeway, Lacona, N. Y., R. D. 2.

TOWN OF CONSTANTIA
Population 2,023

No. 720—Farm of 200 acres; 1¼ miles from Bernhards Bay P. O., R. D. 1, and railway station, on line of N. Y., O. & W. R. R.; ¼ mile from school, churches and milk station. Highways, good. Nearest village, Cleveland, population about 1,000, 3 miles distant, reached by highway. Surface, level. Soil, sandy. Acres in meadow, 20; in natural pasture, 60; in timber, 100, second growth of birch, maple, hemlock,

spruce and pine. Acres tillable, 100. Few apple trees. $2\frac{1}{2}$ acres of strawberries. Best adapted to strawberries. Fences, barbed wire, in good condition. 12-room house, new slate roof, in good condition. Barns, 40x65, 26x36, 24x32, in fine condition; smoke house and hen house; also new hen house, 13x63. Watered, spring water in house; barns watered by wells; good stream flows through this farm. $1\frac{1}{4}$ miles from Oneida Lake. Occupied by owner. Reason for selling, old age of owner. Price, \$4,500. Terms, one-half cash, easy payments for balance. Address Herbert Cook, Bernhards Bay, N. Y., R. D. 1.

TOWN OF HANNIBAL

Population 2,148

No. 721 — Farm of 52 acres; 3 miles from Hannibal P. O. and railway stations of Hannibal and Fulton, on lines of D., L. & W. R. R., and N. Y. C. & H. R. R. R.; near school and churches; 3 miles from butter factory, milk station and condensing plant. Highways, good. Nearest city, Fulton, 4 miles distant; nearest village, Hannibal, 3 miles distant, reached by highway; Oswego, 10 miles distant; Syracuse, 18 miles distant. Surface, partly level and partly rolling. Soil, very good. All of this farm is tillable except about 6 acres of timber, consisting of fine cedar, which is quite valuable. The land is adapted to the raising of all grain crops. Fences are about one-half new. House has been unoccupied for some years and is dilapidated. Good barn with basement. House has very fine well water; barn has well near; fields have a stream running through them. A beautiful lake is about 2 miles away, and the Oswego River and Barge Canal at Fulton are 4 miles away. With proper care, this would make an excellent farm; has been assessed higher than any other in locality, and once sold for \$3,000; is well placed and well watered. The city of Fulton offers every advantage and the Barge Canal promises great things for the future. When this farm had good care, the results were most satisfactory, and the fruit raised was of the finest. The farm is unoccupied. Reason for selling, distance of owner from property. Price, \$1,200. Terms, cash. Address Mrs. Letitia Cornell, care of Wm. A. Cornell, 27 William street, New York City, N. Y.

* No. 722 — Farm of 44 acres; located 3 miles from Hannibal P. O., R. D. 3, near railway station at Medcalf, on line of L., W. & O. R. R.; $\frac{1}{4}$ mile from school; 3 miles from Catholic and Protestant churches; 3 miles from butter factory and cheese factory; milk station at farm. Highways, good. Nearest city, Oswego, 8 miles distant, reached by rail or highway. Surface of farm, rolling. Altitude, 400 feet. Soil, gravelly loam. All tillable. Fruit, 110 bearing apple trees, 110 pear trees, 2 years old. Best adapted to corn, potatoes, etc. Fences, mostly woven wire. House, large, 10 rooms. Outbuildings, barn, 30x40; barn, 12x30; barn, 12x30; barn, 15x18; silo, 12x27; shop, 15x20. Watered by well, cistern, brook and creek. Occupied by owner. Reason for selling, owner wants to move to town. Price, \$2,500. Terms, cash. Address Kenneth L. Hill, agent, Hannibal, N. Y.

*No. 723 — Farm of 130 acres; located 2 miles from Hannibal P. O., R. D. 3, and railway station, on line of R. W. & O. R. R.; 1 mile from school; 2 miles from churches, milk station, butter and cheese factory. Highways, good. Nine miles from Fulton, reached by rail or highway. Surface of farm, rolling. Altitude, 400 feet. Soil, gravelly loam. Acres in timber, 20, maple, hemlock, beech, etc. Acres tillable, 100. Fruit, apples, plums, peaches and cherries. Best adapted to corn, potatoes, etc. Fences, mostly woven wire. House, $1\frac{1}{2}$ stories, 16 rooms, good condition. Outbuildings, barn, 36x40; barn, 22x40; silo, 14x28; hen house, 16x20; basement barn, 36x40; hog house, sheep pen and wagon shed. Watered by wells and spring. Occupied by owner. Reason for selling, ill health of owner. Price, \$5,500. Terms, $\frac{1}{2}$ down, balance on mortgage. Address Kenneth L. Hill, agent, Hannibal, N. Y.

*No. 724 — Farm of 32 acres; located in village of Hannibal, on line of R., W. & O. R. R.; $\frac{1}{4}$ mile from school and churches; $\frac{1}{4}$ mile from butter factory and cheese factory. Highways, in good condition. Eleven miles from Oswego and 8 miles from Fulton, reached by highway. Surface of farm, rolling. Altitude, about 350 feet. Soil, sandy loam. All tillable. Fruit, 200 pear and

* Indicates farm is in hands of agent or real estate dealer.

75 apple trees. Adapted to general farming. Fences, barbed wire, good condition. House, 10 large rooms, 2 stories. Outbuildings, barn, 30x70; barn, 30x40, with basement. Watered by well and creek. Six miles from Lake Ontario. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,000. Terms, cash. Address Kenneth L. Hill, agent, Hannibal, N. Y.

*No. 725 — Farm of 177 acres; located 4 miles from Hannibal P. O., R. D. 4, and railway station, on line of R., W. & O. R. R.; $\frac{1}{4}$ mile from school; 1 mile from church, butter factory and cheese factory; 4 miles from milk station; 8 miles from milk condensing plant. Highways in good condition. Eight miles from Fulton, reached by rail and highway. Surface of farm, rolling and level. Altitude, about 420 feet. Soil, gravelly loam, clay sub-soil. Acres in timber, 20, hemlock, beech, maple, etc. Acres tillable, 130. Fruit, apples, pears, plums, peaches, cherries, grapes and currants. Fences, barbed wire and woven wire, good condition. House, 2 stories, 12 rooms. Outbuildings, barn, 40x60, with basement; silo; good tobacco shed. Watered by well, cistern, spring and brook. This farm is 8 miles from Lake Ontario. Occupied by tenant. Reason for selling, owner has other business. Price, \$55 per acre. Terms, \$3,000 cash, balance on mortgage at 5% interest. Address Kenneth L. Hill, agent, Hannibal, N. Y.

TOWN OF MEXICO

Population 2,982

*No. 726 — Farm of 55 acres; 2 miles from railway station at Mexico, on line of N. Y. C. & H. R. R. R.; 2 miles from school, churches, butter factory and cheese factory. Highways, good. Nearest village, Mexico, population 1,500, 2 miles distant, reached by highway. Surface of farm, rolling. Soil, clay and loam. Acres tillable, 50. Best adapted to timothy, clover, oats and grain. Fences, good. House, 10 rooms, large cellar, in good repair. Barn, 36x26, with ell, 26x28; basement stable, 24x34; silo, 10x25. Watered, house and barn, by well; fields, by springs. Near Lake Ontario. Occupied by owner. Reason for selling, owner wishes to engage in other business. Owner will leave 10

cows and farm tools. Price, \$4,000. Terms, \$1,500 cash, balance at 5%. Address J. H. McLear, agent, Gouverneur, N. Y.

No. 727 — Farm of 136 acres; located 2 miles from Maple View P. O., R. D. 1; 2 miles from railway station at Parish or Maple View, on line of R., W. & O. and N. Y. C. R. R.; $\frac{3}{8}$ mile from school; 2 miles from Protestant churches, $1\frac{3}{4}$ miles from butter factory and cheese factory, 2 miles from milk station. Highways, good. Surface of farm, rolling and level. Soil, clay and gravel loam. Acres in meadow, 60; in natural pasture, 60; in timber, 16; hemlock and hard wood, 120. Acres tillable, 120. Fruit, mostly apples. Best adapted to grass, corn, potatoes and cabbage. Fences, mostly wire, good condition. House, large, 10 rooms, good condition. Outbuildings, new barns and outbuildings, barn, 32x61, with cement basement, room for 40 cows. Watered, house and barns, by wells; fields, by streams. Occupied by owner. Reason for selling, owner does not have time to attend to farm. Price, \$5,000. Terms, small payment down, balance on mortgage. Address E. M. Wightman, Constantia, N. Y. Owner will rent for cash, on shares or with option to buy.

TOWN OF REDFIELD

Population 803

No. 728 — Farm of 90 acres; located 5 miles from Redfield P. O., R. D. 1; $9\frac{1}{2}$ miles from railway station at Richland, on line of R., W. & O. R. R.; $1\frac{1}{2}$ miles from school and cheese factory; 3 miles from church. Surface of farm, rolling. Altitude, 1,175 feet. Soil, gravel and loam. Acres in meadow, 20; in natural pasture, 55; in timber, 15, hemlock, spruce and hardwood. Acres tillable, 45. Fruit, about 20 apple trees. Best adapted to corn, potatoes and oats. Fences, wire, fair condition. House, $1\frac{1}{2}$ stories, fair condition. Outbuildings, barn, 24x36, fair condition. Watered by well. Reason for selling, owner does not care to work farm, other business. Price, \$400. Terms, cash. Address Henry Livingston, Watertown, N. Y.

No. 729 — Farm of 130 acres; located 5 miles from Redfield P. O., R. D. 1; 9 miles from railway station at Rich-

* Indicates farm is in hands of agent or real estate dealer.

land, on line of R. W. & O. R. R.; $1\frac{1}{2}$ miles from school and cheese factory; $2\frac{1}{2}$ miles from Methodist church. Surface of farm, mostly smooth, some hills. Altitude, about 1,150 feet. Soil, gravelly. Acres in meadow, 24; in natural pasture, 80; in timber, 26, hemlock and hardwood. Acres tillable, 60. Best adapted to corn, potatoes and oats. Fences in poor condition. House, small, poor condition. Barn in poor condition. Occupied by owner. Reason for selling, advanced age of owner. Price, \$400. Address Henry Brown, Watertown, N. Y. Owner will rent.

No. 730 — Farm of 78 acres; located 3 miles from Redfield P. O., R. D. 3; $8\frac{1}{2}$ miles from railway station at Williamstown, on line of R., W. & O. R. R.; $1\frac{1}{2}$ miles from school; 3 miles from churches; $\frac{1}{2}$ mile from cheese factory; 9 miles from milk station. Surface of farm, rolling. Altitude, 1,200 feet. Soil, gravelly. Acres in meadow, 10; in natural pasture, 40; in timber, 30, hardwood. Acres tillable, 24. Fruit, apples and pears. Best adapted to corn and oats. Fences, wire, good. Occupied by owner. Reason for selling, owner has too much land. Price, \$800. Terms, $\frac{1}{2}$ cash. Address Walter Dowling, Williamstown, N. Y., R. D. 3.

TOWN OF RICHLAND

Population 3,791

*No. 731 — Farm of 200 acres; located 2 miles from Pulaski P. O. and railway station, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school; 2 miles from churches and milk station. Highways, level. Surface of farm, nearly level. Soil, clay loam. Acres in timber, 5, second growth. Acres tillable, 190. Fruit, apples, berries and currants. Best adapted to dairying. Fences, mostly wire, good condition. House, 12 rooms, good condition, also tenant house, poor condition. Outbuildings, basement cow barn, 40x100, with ell, 60x60; granary, hen house, silo, fair condition. Occupied by owner. Reason for selling, to settle an estate. Price, \$12,700. Terms, \$4,000 down. Address J. H. Fort, agent, Stone Building, Oneida, N. Y.

TOWN OF SANDY CREEK

Population 2,106

No. 732 — Farm of 186 acres; located 2 miles from Pulaski P. O., R. D. 4, and railway station, school next to farm; 2 miles from Protestant church, butter factory, cheese factory, milk station and milk condensing plant. Highways, good. Nearest city, Syracuse, 20 miles distant, reached by rail and highway. Surface of farm, level. Soil, good, rich. Acres in meadow, 7; in natural pasture, 70; in timber, 25, mostly hard wood. Acres tillable, 160. Best adapted to hay. Fences in good condition. House, 15 rooms, new and well built. Outbuildings, carriage house, ice house, ash house and other outbuildings, in good condition. Watered, house, by well; barns, by running water. This farm is 3 miles from Lake Ontario. Occupied by owner. Reason for selling, ill health of owner. For price and terms, address Mrs. Ella Stewart Clark, Pulaski, N. Y.

No. 733 — Farm of 160 acres; located $1\frac{1}{4}$ miles from Sandy Creek P. O.; 2 miles from railway station at Lacona, on line of R., W. & O. Ry.; $1\frac{1}{2}$ miles from school; 1 mile from church; 2 miles from butter factory, cheese factory and milk station. Highways, good. Surface of farm, rolling. Soil, loam. Acres in meadow, 90; in natural pasture, 60; in timber, 18, beech, birch, maple and hemlock. Acres tillable, 120. Fruit, apples, pears, plums and grapes. Best adapted to corn, oats and hay. Fences in fair condition. Large house, good condition. Outbuildings, barn, 50x34, underground stable; barn, 30x40; hen house, 60x24, fair condition. Watered, house and barns, by wells; fields, by spring brook. This farm is 3 miles from Lake Ontario. Occupied by tenant. Reason for selling, owner desires to retire from business. Price, \$6,500. Terms, \$2,000 cash, balance to suit purchaser. Address Gilford Hadley, Sandy Creek, N. Y.

TOWN OF SCRIBA

Population 2,199

No. 734 — Farm of 111 acres; 5 miles from Oswego. Five acres timber. About 350 apple trees, 250 pear trees, plums and other fruit. House, 30x40, with 2

* Indicates farm is in hands of agent or real estate dealer.

wings, in good condition. Barns, 30x60 and 20x38; sheds and other buildings; all good; also tenant house. Well watered and well fenced. Price, \$55 per acre. Terms, easy. Address J. H. Worden, Oswego, N. Y., R. D. 2.

TOWN OF WEST MONROE
Population 915

No. 735—Farm of 87 acres; located $2\frac{1}{2}$ miles from West Monroe P. O. and railway station, on line of N. Y., O. & W. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from Protestant church, butter factory, cheese factory and milk station. Highways, good. Surface of farm, rolling. Soil, sandy and clay loam. Acres in meadow, 50; in natural pasture, 25; in timber, 12, second growth. Acres tillable, about 75. Fruit, 25 apple, 1 cherry and 2 plum trees, also 1 grape vine. Best adapted to hay, oats, corn, potatoes, wheat and buckwheat. Fences, wire, good. House, upright, 18x24, with wing, 15x20. Outbuildings, barn, 30x40; barn, 40x60; wagonhouse, 13x24; hog house, 13x16. Watered, house and barn, by well; fields, by spring. This farm is $1\frac{1}{2}$ miles from Oneida lake. Occupied by owner. Reason for selling, ill health of owner. Price, \$4,500. Terms, \$1,000 down, balance on easy terms. Address John E. Lord, West Monroe, N. Y.

TOWN OF WILLIAMSTOWN
Population 896

No. 736—Farm of 790 acres; located 2 miles from Kasoag and $2\frac{3}{4}$ miles from Williamstown, both stations on line of R., W. & O. R. R.; 2 miles from school; $2\frac{3}{4}$ miles from milk station and cheese factory. Highways, excellent. Surface of farm, $\frac{1}{3}$ level, $\frac{1}{6}$ hilly and remainder rolling. Acres in meadow, 90; in natural pasture, 200; in crops, 50. Acres tillable, 140. Remainder was in timber, which has now been cut off. Best adapted to hay, corn, peas and oats. Fences, post and wire, good condition. House, stories, 20x24; wing, 28x20; also two tenant houses, one of 6 rooms, needs shingling. Outbuildings, cow barn, 40x110; cement driveway, water piped, excellent condition; horse barn, with box-stalls and four mangers attached, stone engine house, granary and milk house. Water piped to house and barn. Fish creek, a trout stream forms the western boundary of farm for $\frac{1}{2}$ mile. About 35 acres of rich, muck land on farm, suitable for celery, onions, etc. Occupied by tenant. Price, \$7,500. Terms, \$2,000 cash, balance in yearly payments of \$200 or more with interest at 5%. Address S. C. Huntington, Oswego, N. Y., or John L. Sage, Williamstown, N. Y.

OTSEGO COUNTY

Area, 956 square miles. Population, 47,216. Annual precipitation, 46.52 inches. Annual mean temperature, 46.3°. Number of farms, 5,346. County seat, Coopers-town.

This county is situated in the southeastern part of the state. It is drained by the Susquehanna River which has its source in Otsego Lake, by Charlotte River and Butternut and Scheneyus Creeks. Like all the counties of the state it has an abundance of clear, pure water.

The surface is diversified with high broad ridges and long deep valleys, which are generally very wide. Woodlands of oak, sugar maple, ash, beech and elm, are well scattered through the county and cover nearly one-fourth of its area, namely, 143,817 acres. Sandstone and limestone underlie a part of the county, furnishing excellent building material. The soil in the northern part is a gravelly loam while in the eastern part clay loam predominates. In the southern section a soil is found consisting of a red shale formation. In the other parts of the county the soil of the ridges consists of gravelly loam, while the valleys are covered with a dark clay loam. As a whole the county is especially adapted to pasturage and all kinds of farming. Otsego County produces more hops than any other county in the state, the yield in 1910 being 2,287,383 pounds. Some of the other leading products are corn, 308,096 bushels; oats, 827,095 bushels; buckwheat, 188,855 bushels; potatoes, 1,059,120 bushels; hay and forage, 254,991 tons. The valuation of all farm property is \$26,018,419, an increase of 21 per cent. in the last decade. Domestic animals are reported as follows: Dairy cows, 52,920; horses, 13,258; swine, 14,102; sheep, 10,108; poultry, 303,901; production of milk, 28,047,600 gallons; this with the products of 75 milk stations and factories showed receipts of \$2,796,808.

The transportation facilities of the county are excellent; Richfield Springs is popular as a health resort, the springs having great medicinal value. A state normal school is located at Oneonta. There are 296 district schools in the county, 25 agricultural organizations, 78 miles of state and county roads and 2,078 miles of improved highways.

TOWN OF BURLINGTON

Population 1,108

No. 737 — Farm of 137 acres; 1 mile from Burlington Flats P. O., R. D. 1; 5 miles from railway station at Edmeston, on line of O. & W. R. R.; 1 mile from school, Baptist and Methodist churches and cheese factory; 5 miles from condensing plant. State road. Nearest city, Utica, population 75,000, 28 miles distant, reached by rail or trolley. Surface of farm, good. Altitude, 1,240 feet. Soil, good. Acres in meadow, 60; in natural pasture, 60; in timber, 17, beech, maple and hemlock. Fruit, 25 apple trees. Best adapted to corn, oats and potatoes. Fences, mostly barbed wire. House, large and good. Barns: cow barn, 30x60, in good condition; horse barn and wagon house combined; large hen house; hog house and store house. Watered, house, by well, soft water; barns, by creek nearby; fields, by creek and springs. Nine miles from Schuyler Lake. Desirable location, healthful locality. Occupied by tenant. Reason for selling, poor health of owner. Price, \$4,500. Terms, ½ cash. Address F. W. Towne, Burlington Flats, N. Y. Owner will rent.

No. 738 — Farm of 80 acres; located 3½ miles from Edmeston P. O., R. D. 1, and railway station, on line of N. Y. O. & W. R. R.; ¼ mile from school; 2¾ miles from Protestant churches; 5 miles from cheese factory; 3 miles from milk station. Highways, somewhat hilly but good. Surface of farm, rolling. Altitude, 1,730 feet. Soil, loam. Acres in meadow, 16; in natural pasture, 25; in timber, 15, hard wood and basswood; acres tillable, 60. Fruit, apples, plums, cherries, strawberries, raspberries and blackberries. Best adapted to grass, corn, oats, potatoes, etc. Fences, wire, good condition. House, 22x30, with wing, 14x20, two porches, good condition. Outbuildings, barn, 36x36, good basement, concrete floor; wagon house and shed, 22x28, fair condition. Watered, house and barns by running water; fields by springs and brook. Occupied by owner. Reason for selling, advanced age

of owner. Price, \$35 per acre. Terms, ½ cash. Address Chas. Bennington, Edmeston, N. Y. Owner will rent.

TOWN OF BUTTERNUTS

Population 1,453

No. 739 — Farm of 137 acres; 3 miles from Mt. Upton P. O. and railway station, on line of O. & W. R. R.; 1 mile from school; 3 miles from churches; 3 miles from Borden's condensery. Highways, ½ mile hilly, remainder of valley grade, good. Nearest large town, Sidney, population 2,507, distant 9 miles, reached by highway and rail; nearest villages, Mt. Upton, distant 3 miles, and Gilbertsville, 4 miles distant. Occupied by owner. Surface, about 10 acres hilly, balance smooth and rolling. Soil, red shale, good. Acres in meadow, 50; pasture, 60; timber, 27; about 10,000 feet of hard wood and about 25,000 feet of hemlock; acres tillable, about 80. Fruit, about 100 apple trees, 15 pear trees, orchard in good bearing condition and young. Best adapted to hay, oats, millet, corn, potatoes, etc. Fences, mostly barbed wire, good. House, 24x28, fair condition. Barns: one, 46x80, new; wagon house, 26x30, fair; granary and hennery, fair. Watered, house, by well and cistern; barns, by pond; fields, by spring and brooks. Unadilla river 3 miles, and Butternut creek 1 mile distant. Mail every day by milk teams. Finest of maple shade around house. Young tract of pine growing. Meadows picked of stones, upland smooth. Reason for selling, owner cannot work. Price, \$4,000. Terms, part of price could be arranged to remain on place. Address J. A. Musson, Mt. Upton, N. Y.

No. 740 — Farm of 210 acres; located 1½ miles from Gilbertsville P. O., 6½ miles from railway station at Mt. Upton, on line of N. Y., O. & W. R. R.; ½ mile from school; 1½ miles from Protestant churches and butter factory; 2 miles from cheese factory; 6½ miles from milk station and milk condensing plant. Highways, good, part State road. Nearest city, Oneonta, population about 10,000, 17 miles distant, reached by rail and highway. Surface of farm

rolling. Altitude, 1,165 feet. Soil, good. Acres in meadow, about 140; in natural pasture, about 25; acres tillable, 180. Fruit, apples and pears. Best adapted to corn, oats, potatoes and hay. Fences, wire, good condition. House, 12 rooms, long piazza. Outbuildings, horse barn, 30x50; barn, 40½x30; hay barn, 30x50, with shed attached, 18x60; corn house; milk house; large storage house, 26x34; granary, 20x26; ice house, 15x30; log and poultry house, 20x30; milk house, 10x10. Watered, house and barn by running water; fields by springs. A brook runs through farm. Occupied by tenant. Reason for selling, owner lives in New York city and cannot attend to farm. Price, \$6,000. Terms, \$2,500 cash, balance on mortgage. Will sell dairy also, if purchaser desires. Address F. E. Brewer, 41 Hamilton avenue, New Brighton, New York. Owner will rent.

* No. 741—Farm of 190 acres; 4 miles from Gilbertsville P. O. and 5½ miles from railway station, on line of D. & H. R. R.; ¼ mile from school; 4 miles from Protestant churches; ½ mile from cheese factory; good school house on farm, in sight of house; good cheese factory in sight of house. Roads, good but somewhat hilly. Surface, rather hilly, but meadows fairly level. Soil, red shale. Acres in meadow, 60; natural pasture, 80; timber, 20, mostly hard wood; all tillable except woodland. Fruit, fair amount of fruit, apples, plums and pears. Best adapted to corn, oats, rye, buckwheat, hay and potatoes. Fences, wall, wire and rail, in good condition. House, good size, in good condition. Barns: 3 barns, wagon house and hog pen. Watered, house and barns, by running water; fields, by springs and creek. Reason for selling, owner a widow who has other business. Price, \$3,500. Terms, \$1,500 down, balance on time. Address Wm. F. Ward, Gilbertsville, N. Y.

TOWN OF CHERRY VALLEY

Population 1,706

No. 742—Farm of 160 acres; 4 miles from Cherry Valley P. O., R. D. 2; 3 miles from railway station at Sharon Springs, on line of D. & H. R. R.; ½ mile from school and Protestant churches; 3 miles from butter factory and milk station. Highways, good.

Surface, mostly level. Soil, limestone, good. Acres in timber, 35, beech, maple, ash and basswood; acres tillable, 125. Fruit, apples, pears, cherries, plums, also currants and blackberries. Best adapted to hay, grain, potatoes, corn, hops, etc. House, 40x26, 14 rooms, attic and wood house. Outbuildings: barn, 40x44, with shed, 18x30; wagon house, 24x45; pig pen, 15x20; all in good condition. Telephone in house. Tenant house and barn on farm. Watered, house by well; barns by well and springs; fields by springs. Reason for selling, to close an estate. Price, \$4,000. Address John D. Lynk, Cherry Valley, N. Y.

* No. 743—Farm of 200 acres; located ¾ mile from Cherry Valley P. O. and railway station, on line of D. & H. R. R.; ½ mile from school, butter factory and milk station; ¾ mile from churches. Highways in excellent condition. Surface of farm level and rolling. Soil, strong loam. Acres in meadow, 80; in natural pasture, 50; in timber, 30; some first and some second growth. Acres tillable, 150. Fruit, 80 apple trees. Best adapted to hay, grain, fruit and dairying. Fences, wire and stone. House, good, but old fashioned. Outbuildings ample for size of farm and in good condition. Watered by well, spring and brook. Occupied by owner. Price, \$20,000. Terms, ½ cash. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

TOWN OF EDMESTON

Population 1,567

No. 744—Farm of 42 acres; in village of Edmeston, on line of N. Y., O. & W. R. R.; graded school; Baptist and Methodist churches; condensing plant in village. State road. Nearest cities, Oneonta and Norwich, 24 miles distant, reached by rail or highway. Surface of farm, part level and part rolling. Altitude, 1,232 feet. Soil, clay loam, very strong soil. Acres in meadow, 25; in natural pasture, 17; all tillable. Fruit, 20 apple trees, winter and fall varieties. Best adapted to corn, oats, potatoes, beans, peas and hay. Fences, board and wire, in good condition. Large 2-story house, with 2 wings, hot water heat, hot and cold water throughout, \$1,500 in plumbing, nicely painted,

* Indicates farm is in hands of agent or real estate dealer.

large lawn. Barns: 84x40, slate roof, cost \$2,000 to build, modern; another barn, 30x40, fine repair; large granary, in fine repair. Watered, house, by city water; barns, by running water; fields, by running water and living spring, 7 miles from Unadilla river. A fine small farm in village; there is a flat at end of street with 26 building lots ready to sell and open up. Occupied by owner. Reason for selling, owner has business interests elsewhere. Price, \$8,000. Terms, \$4,000 cash, balance long term of years at 5%. Address A. H. Medbury, Edmeston, N. Y. Owner will rent.

No. 745 — Farm of 150 acres; $2\frac{1}{2}$ miles from Edmeston P. O.; $2\frac{1}{2}$ miles from railway station at Edmeston, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from Baptist and Methodist churches, from butter factory, cheese factory, milk station and condensing plant. Highways, good, on a grade, but not bad hills. Nearest village, Edmeston, population 700. Surface of farm, meadows slope to east. Soil, very productive. Acres in meadow, 40; in natural pasture, 70; in timber, 40; maple, beech and hemlock; acres tillable, 40. Fruit, fairly good orchard of 50 trees, various kinds. Best adapted to corn, oats and hay. Fences, mostly barbed wire, in good condition. Fourteen-room house, in good condition. New barn, 32x70, with concrete floor, swing stanchions for 30 head; 2 box stalls, 4 horse stalls, roofed with best grade of metal shingles; silo; 4 other buildings. Watered, house, by spring; fields by never-failing springs. Reason for selling, owner has other business. Price, \$4,500. Terms, \$1,000 cash, balance 5 years at 5%. Address Clarence Talbot, Edmeston, N. Y.

No. 746 — Farm of 235 acres; $\frac{1}{2}$ mile from Edmeston P. O., R. D. 1, and railway station, on line of N. Y., O. & W. R. R.; $\frac{1}{4}$ mile from school; 1 mile from churches; $\frac{1}{2}$ mile from Borden's condensed milk plant. Highways, good. Nearest city, Oneonta, population 9,491, 24 miles distant, reached by rail and highway. Surface of farm, part level and part rolling. Altitude, 1,200 feet. Soil, loam, very strong. Acres in meadow, 100; in natural pasture, 80; in timber, 55, hemlock, maple and beech; acres tillable, 175. Fruit, apples. Best adapted to corn, oats, potatoes, beans,

peas, hay, etc. Fences, mostly, wire, good condition. House, 2 stories, with wing, large, good condition. Outbuildings: basement barn, 109x32, cement floors all through, stable room 44 head of cattle; 2 silos, 140-ton capacity; long shed, 100 feet, with hay loft above; 4 outbuildings; all in good repair. Watered, house and barn, by running water; fields, by living streams. This farm is 6 miles from Unadilla river. Occupied by tenant. Reason for selling, owner is in business in Michigan. There is \$5,000 worth of hemlock timber on farm; 125 tons of hay were cut last year. Price, \$50 per acre. Terms, \$5,000 down, balance on long time at 5% interest. Address A. H. Medbury, Edmeston, N. Y. Owner will rent.

No. 747 — Farm of 193 acres; located $2\frac{1}{4}$ miles from Edmeston P. O. and railway station, on line of O. & W. R. R.; $2\frac{1}{4}$ miles from Protestant churches, butter factory, cheese factory, milk station and milk condensing plant. Highways, good, part State road. This farm is 32 miles from Utica. Surface of farm, slightly rolling. Soil, very productive. Acres in meadow, 40; in natural pasture, 113; in timber, 40, hemlock, beech and maple. Acres tillable, 153. Fruit, 100 trees. Best adapted to hay, corn, oats, potatoes, peas, etc. Fences, mostly barbed wire, good condition. House, 25x30, fair condition. Outbuildings, barn, 30x80, fair condition; horse barn, 30x40, fair condition. Watered, by well and stream. Unoccupied. Reason for selling, advanced age of owner. Price, \$3,800. Terms, $\frac{1}{2}$ cash, balance on long time at 5% interest. Address Wm. Talbot, Edmeston, N. Y.

TOWN OF EXETER

Population 1,067

No. 748 — Farm of 187 acres; 2 miles from Schuyler Lake; 1 mile from Exeter P. O. Soil, very productive. Acres in timber, 70, consisting of beech, maple, white ash, cherry and basswood. Good $1\frac{1}{2}$ -story house; 3 good barns, 30x45 each. Watered, house by driven well, which will produce 200 pails of water per day in the dryest time; running water in barn. Fences, good. Owner has lived on farm for 50 years. This farm is stocked with high-grade Holstein cows. Will sell cows, horses and all farming implements if buyer desires.



FIG. 140.— BUILDINGS ON FARM NO. 772, TOWN OF OTEGO, OTSEGO COUNTY.



FIG. 141.— HAYING SEASON ON FARM NO. 772, TOWN OF OTEGO, OTSEGO COUNTY.

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Reason for selling, owner unable to work farm. Price, \$20 per acre. Name and address of owner, Moses Daly, Exeter, N. Y.

No. 749 — Farm of 13 acres, adjoining the village of Exeter Center; 2 miles from Schuyler Lake on line of O. & M. Valley R. R. store and post-office on the land; close to good school and churches. Very desirable property for summer home. On a good road; in a fine location. Five acres of orchard. Very fertile soil. House, 2 stories, in good condition, 35x40, with wing, 20x30. Barn, good, 35x65, with new addition; other outbuildings, hen house, etc. Watered by springs, well and brook. Fences, good. Price, \$4,000. Terms, \$2,000 cash, balance on time. Address P. J. Horan, Exeter, N. Y. Owner will rent for cash or with option to buy.

TOWN OF HARTWICK
Population 1,813

* No. 750 — Farm of 245 acres; located 3 miles from Cooperstown P. O. and railway station, on line of D. & H. R. R.; ½ mile from trolley, school and churches, cheese factory on farm. Highways, State road. Surface of farm, mostly level, small portion hilly. Soil, black loam. Acres in natural pasture, 30; in timber, 35. Acres tillable, 180. Fruit, 100 apple trees, also a few plums, pears and cherries. Best adapted to hay, grain, hops and livestock. Fences, fair to good. House, 44x30 with ell, good condition, 14 rooms. Outbuildings, basement barn, 105x36, steel roof, good; 4 tenant houses, large horse barn, corn crib, cheese factory, horse barn, poultry house, tool house, etc. Watered, house and barn by running water, fields by springs. This farm is 3 miles from Otsego Lake. Occupied by owner. Two silos on farm. Reason for selling, owner wants a smaller place. Price, \$10,000. Terms, ½ down; might take a small farm in part payment. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

TOWN OF LAURENS
Population 1,453

No. 751 — Farm of 142 acres; 2 miles from Laurens P. O., R. D. 1; 2 miles from railway station at Laurens, on line of Otsego & Herkimer Electric R.

R.; ¼ mile from school; 2 miles from churches and butter and cheese factory. Highways, good. Nearest city, Oneonta, population 9,491, 8 miles distant, reached by trolley. Surface, part level and part hilly. Soil, clay. Acres in meadow, 20; in natural pasture, 50; in timber, 12, mostly hard wood. Acres tillable, 100. About 75 fruit trees. Best adapted to corn, oats, buckwheat and potatoes. Fences, wire, in fair condition. House, 7 rooms, in fair condition. Basement barn, large horse barn, hen house and granary. Watered by well. Outlet of Gilbert's lake, 1 mile distant, passes through farm; 9 miles from Susquehanna river. Reason for selling, age and health of owner. Price, \$3,000. Terms, \$1,000 down, balance on mortgage. Address Mrs. W. R. Brink, Laurens, Otsego county, N. Y. Owner will rent for \$150.

No. 752 — Farm of 110 acres; 2 miles from Laurens P. O. and railway station at Laurens, on line of Oneonta & Mohawk Electric R. R.; 2 miles from church and milk station; 1 mile from school. Highways, good. Nearest city, Oneonta, population 9,491, 11 miles distant, reached by rail. Surface, rolling. Soil, good mellow loam. Acres in meadow, 50; in natural pasture, 35; in timber, 25, pine, hemlock, beech and maple. About 145 fruit trees. Best adapted to corn, oats and potatoes. Fences, wire, in good condition. House, 16x40; wing, 24x32; summer kitchen, 16x16, in good condition. Barn, 44x74. Watered, house, by pump; barns, by running water; fields, by springs and creek. Within 2 miles of Gilbert's lake. About \$1,000 worth of timber on the place. Reason for selling, ill health. Price, \$4,000. With stock, tools, farm machinery and crops, price, \$5,200. Terms, \$2,500 cash, balance on mortgage. Address A. H. Knight, Laurens, N. Y.

No. 753 — Farm of 150 acres; located 4 miles from Laurens P. O. and railway station, on line of Otsego & Herkimer R. R.; 1 mile from school; 4 miles from churches; ¼ mile from butter factory; 3¼ miles from cheese factory; 4 miles from milk station. Highways, hilly but good. Nearest city, Oneonta, 12 miles distant, reached by rail and highway.

* Indicates farm is in hands of agent or real estate dealer.

Surface of farm, level and rolling. Altitude, 1,600 feet. Soil, clay loam. Acres in meadow, 60; in natural pasture, 60; in timber, 30, hard wood. Acres tillable, 120. Fruit, apples and pears. Best adapted to corn, oats, millet, potatoes, buckwheat and rye. Fences, wire, good condition. House, 14 rooms, good condition. Outbuildings, cow barn, horse barn, hen house, ice box, granary, etc. Watered by well, springs and creeks. Occupied by owner. Farm 40 rods from Gilbert's lake. Reason for selling, owner has another farm. Price, \$4,000. Terms, \$1,500 down, balance on mortgage. Address Milton Brown, Laurens, N. Y., R. D. 1.

No. 754 — Farm of 160 acres; located $\frac{1}{4}$ mile from West Laurens P. O.; 5 miles from railway station at Laurens, on line of Otsego & Herkimer R. R.; $\frac{1}{4}$ mile from school, church and butter factory. Highways good. Nearest city, Oneonta, 9 miles distant, reached by highway. Surface of farm, partly level and partly rolling. Good soil. Acres in meadow, 40; in natural pasture, 60; in timber, 15, mostly hard wood. Acres tillable, 125. Fruit, apples, pears and plums. Best adapted to potatoes and corn. Fences, barbed wire, good condition. House, 36x40, first-class condition. Outbuildings, barn, 40x60; hog pen, 16x24; hen house, 16x60; milk room, 10x16; running water; all in first-class condition. Watered, house and barn, by running water; fields, by springs and creek. Occupied by owner. Price, \$4,200. Terms, \$2,200 down, balance on mortgage. Address C. W. Peaslee, Laurens, N. Y.

No. 755 — Farm of 86 acres; located 4 miles from Laurens P. O., R. D. 1, and railway station, on line of Otsego & Herkimer R. R.; $\frac{1}{2}$ mile from school; 3 miles from churches; $1\frac{1}{2}$ miles from milk station; 4 miles from cheese factory. Highways, good. Nearest city, Oneonta, 12 miles distant, reached by rail and highway. Surface of farm, level. Altitude, about 1,700 feet. Soil, some fair, some good. Acres in meadow, 36; in natural pasture, 38; in timber, 12, beech and maple. Acres tillable, 70. Fruit, apples, pears, plums, cherries and grapes. Best adapted to hay, grain and potatoes. Fences, wire and stone wall, fair condition. House, 30x25, two stories. Outbuildings, barn, 36x38, with

stone basement; hen house, 20x40; wood shed, 12x24. Watered, house, by running water; barns and fields, by springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,500. Terms, $\frac{1}{2}$ down, balance on time. Address C. A. Brownell, Laurens, N. Y., R. D. 1.

TOWN OF MARYLAND

Population 1,852

No. 756 — Farm of 159 acres; $2\frac{1}{2}$ miles from Maryland P. O. and railway station at Maryland, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from church and milk station. Highways, good. Nearest city, Oneonta, population, 9,491, $14\frac{1}{2}$ miles distant, reached by rail and highway. Surface, wide valley, nearly level, with pastures on hillside. Soil, good. Acres in meadow, 62; in natural pasture, 57; in timber, 40, maple, beech, chestnut and hemlock; acres tillable, 108. A few fruit trees. Best adapted to potatoes, oats, buckwheat and corn. Fences, wire and rail, in fair condition. Large frame house, in good condition, but needs painting. Two large barns, one in good condition and one in fair condition; large hen house and sap house. Running water in house. Nine miles from Otsego Lake; 2 miles from Crumhorn Lake. Trout brook on farm. This is one of the best dairy farms in the town of Maryland and would be suitable for summer home. Reason for selling, death of husband of owner. Price, \$3,500. Terms, \$1,350 on mortgage, balance cash. Address Mrs. E. G. Brown, Worcester, N. Y. Owner will rent.

No. 757 — Farm of 15 acres; located 1 mile from Schenewus P. O. and railway station, on line of D. & H., Susquehanna Division; $\frac{1}{4}$ mile from school and Methodist church; 1 mile from Catholic, Presbyterian and Baptist churches; 1 mile from milk station. Highways, hilly but good. Nearest city, Oneonta, 16 miles distant, population about 10,000, reached by rail and highway. Surface of farm, rolling and level. Soil, gravelly loam, good. Acres in meadow, 13; acres tillable, 15. Fruit, 35 apple, 4 pear and 2 plum trees, also raspberries and blackberries. Best adapted to grass, potatoes, berries, garden stuff, etc. Fences, stone wall. House, 20x30,

with wing, 12x12, 5 rooms and attic, 1½ stories, upper story unfinished. Outbuildings, barn, 20x30, with linter, 30x12, good condition. Watered by well. Occupied by owner. Reason for selling, owner desires to secure a larger place. Price, \$800. Terms, cash. Address Wm. G. Wheeler, Schenectady, N. Y.

No. 758—Farm of 30 acres; located 3½ miles from Schenectady P. O., R. D. 1, and railway station, on line of D. & H. R. R.; 1 mile from school; 3½ miles from Catholic and Protestant churches and milk station. Highways, good, part State road. Nearest city, Oneonta, 16 miles distant, population about 10,000, reached by rail and highway. Altitude, about 1,600 feet. Soil, some slate, mostly good. Acres in meadow, 15; in natural pasture, 5; in timber, 10, hard and soft wood, chestnut and pine. Acres tillable, 20. Fruit, apples, pears, plums and berries. Best adapted to hay, corn and potatoes. Fences, some rail and some wire, good. House, 28x30, fair condition. Outbuildings, barn, 30x40, good condition. Watered, house, by running water; barn, by brook; fields, by spring and brook. Occupied by tenant. Reason for selling, owner lives too far away to attend to farm. Price, \$600. Terms, cash. Address Manley E. Clark, Sussex, N. J.

No. 759—Farm of 225 acres; located 1 mile from Schenectady P. O., R. D. 1; 1¼ miles from railway station at Schenectady, on line of D. & H. R. R.; 1 mile from high school; ½ mile from country school; 1 mile from Catholic and Protestant churches; 1¼ miles from milk station; 2 miles from cheese factory. Highways, level, State road. Surface of farm, level and rolling. Altitude, 1,300 feet. Soil, sandy loam. Acres in meadow, 110; in natural pasture, 30; in timber, 35, mixed. Acres tillable, 200. Fruit, apples and pears. Adapted to all crops grown in this climate. Fences, mostly wire, good condition. House, large, good condition. Old style, roomy barns. Watered, house and barns have running spring water; fields, by springs and streams. Reason for selling, to close an estate. Price, \$10,000. Address S. Hubbard Estate, Schenectady, N. Y.

TOWN OF MIDDLEFIELD

Population 1,949

No. 760—Farm of 250 acres; 2 miles from Roseboom and 6 miles from Cherry

Valley railway station, on the D. & H. R. R. Soil, black loam. Acres in meadow, 100; pasture, 100; timber, 50. House, large, in good condition. Barns and outbuildings, 3 large barns: 1 cow stable, 1 large horse barn, new cow barn; hog house and hen house with concrete floors; new silo erected this year. Watered by creek, wells and springs. Fences, wire, in good condition. Reasonable price. Terms, moderate. Name and address of owners, T. & W. Cunningham, Cooperstown, N. Y., R. D. 5.

TOWN OF MORRIS

Population 1,434

No. 761—Farm of 60 acres; located 2½ miles from Morris P. O.; 5 miles from railway station at New Berlin, on line of O. & W. R. R.; 5 miles from milk station and milk condensing plant; ½ mile from school; 2½ miles from Catholic and Protestant churches. Highways, somewhat hilly but good. Surface of farm, rolling and level. Altitude, 1,600 feet. Soil, good. Acres in meadow, 40; in natural pasture, 12; in timber, 8, good for firewood, hard. Acres tillable, 10. Fruit, 30 trees in all, mostly apples, a few pears and cherries. Best adapted to oats, corn, buckwheat and barley. Fences, wire and wood, good condition. House, 8 rooms, good condition. Outbuildings, large barn with 3 horse stalls and 6 cow stanchions, 2 hay mows, 2 wagon sheds, hen house and hog house. Watered, house and barn, by well; fields, by spring and creek. Occupied by owner. Reason for selling, owner a widow. Price, \$1,350. Terms, cash. Owner will sell stock and tools if desired. Address Mrs. Phoebe A. Simpson, New Berlin, N. Y.

No. 762—Farm of 16 acres; located 1 mile from Morris P. O.; 8 miles from railway station at New Berlin, on line of N. Y., O. & W. R. R.; ½ mile from school; 1 mile from Protestant churches, butter factory and milk station; 3 miles from cheese factory; 8 miles from milk condensing plant. Highways, good. Nearest city, Oneonta, 14 miles distant, reached by highway. Surface of farm, level. Altitude, 1,103. Soil, loam. Acres in meadow, 13; in natural pasture, 3. Acres tillable, 16. Fruit, apples, pears, plums and cherries. Best adapted to corn, oats, wheat, buckwheat and potatoes. Fences, barbed wire, nearly new. House, 9 rooms, good condition. Out-

buildings, barn 34x18, barn 40x20, barn 14x24. Watered by well and brook. Butternut Creek 10 rods from farm. Occupied by owner. Reason for selling, owner in other business. Price, \$2,000. Terms, one-half down, balance on mortgage at 5%. Address A. J. Wightman, Morris, N. Y.

No. 763 — Farm of 144 acres; located $\frac{1}{2}$ mile from Morris P. O., $\frac{7}{8}$ miles from railway station at New Berlin, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school, butter factory, milk station and Protestant churches; 7 miles from milk condensing plant. Highways, good. Nearest city, Oneonta, 14 miles distant, reached by highway. Surface of farm, rolling. Altitude 1,300 ft. Acres in meadow, 72; in natural pasture, 52; in timber, 20, beech, maple, hemlock and pine. Acres tillable, 100. Fruit, 75 apple trees, 10 plum trees and 1 grape vine. Best adapted to corn, oats, buckwheat, barley, hay and potatoes. Fences, wire, good condition. House, 11 rooms, good condition. Outbuildings: barn 30x56 with basement, horse barn 26x40, new, hog house and hen house. Running water at house and barns. Brook runs through length of farm. Occupied by owner. Reason for selling, ill health of owner. Price, \$4,000. Terms to suit purchaser. Address E. W. Davis, Morris, N. Y.

No. 764 — Farm of 144 acres; located $3\frac{1}{2}$ miles from Morris P. O., R. D. 1; 5 miles from railway station at South New Berlin, on line of N. Y., O. & W. R. R.; $\frac{1}{2}$ mile from school; $3\frac{1}{2}$ miles from churches; 4 miles from butter factory; 2 miles from cheese factory and milk station. Highways, hilly. Surface of farm, rolling. Good soil. Acres in meadow, 45; in natural pasture, 79; in timber, 20. Acres tillable, 100. Fruit, apples, pears, plums, cherries and grapes. Best adapted to hay, oats, corn, buckwheat and potatoes. Fences, rail, wire and wall, good condition. House, 11 rooms, good condition. Outbuildings: barn 36x49 and barn 20x40, fair condition, barn 26x36, poor condition. Watered by well and spring. Occupied by owner. Reason for selling, owner wants to go into other business. Price, \$2,500. Terms, \$500 down. Address Ira Harris, Morris, N. Y., R. D. 1.

TOWN OF NEW LISBON

Population 1,039

No. 765 — Farm of 80 acres; $2\frac{1}{2}$ miles from Garrettsville P. O.; on R. D. 3 from New Berlin. Soil, loam, very productive. Acres in meadow, 40; pasture, 30; timber, 10. There are locust trees on the farm which nearly pay for the place. House, 32x25. Barns: basement barn, 36x46; cow barn, 20x40; granary; hen house; hog house. Watered by never-failing spring, piped to house and barns. Fences, wire, rail and locust trees. Price, \$1,700. Terms, easy. Address Henry Hnoch, New Berlin, N. Y., R. D. 3.

No. 766 — Farm of 100 acres; about 3 miles from Hartwick P. O., on R. D. 2 from Mount Vision; trolley line at Hartwick; near a good cheese factory. Acres in meadow, 30; pasture, about 30; timber, about 30. House, $1\frac{1}{2}$ stories, 24x30, 4 rooms and closets upstairs, 5 rooms and closets downstairs. Two good barns, with basement, 30x40 and 24x32. Watered by wells near house; springs in pasture. Fences, mostly barbed wire, in fair condition. This farm would make a good dairy farm. Price, \$2,000. Will make confidential terms to purchaser. Name and address of owners, C. H. & Mary P. Young, Mount Vision, N. Y., R. D. 2.

No. 767 — Farm of 230 acres; located 3 miles from Mt. Vision P. O., R. D. No. 2, and railway station, on line of Otsego & Herkimer R. R.; $\frac{1}{2}$ mile from school and cheese factory; 2 miles from Baptist church; 3 miles from butter factory and milk station. Highways, good. Nearest city, Oneonta, 16 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 75; in natural pasture, 95; in timber, 60, hemlock, basswood, hardwood. Acres tillable, 130. Fruit, grapes, cherries, plums. Best adapted to hay, potatoes, oats, corn and buckwheat. Fences, wire with locust posts. House, 10 rooms, good condition. Outbuildings, barn, 36x90; hen house, 12x50; granary and wagon house, 36x40, good condition. Running water at house and barn. Occupied by owner. Reason for selling, advanced age and ill health of owner. Price, \$4,000. Terms, easy. Address Jas. K. Reynolds, Mt. Vision, N. Y., R. D. No. 2.

No. 768—Farm of 200 acres; located 5 miles from Mt. Vision P. O., R. D. No. 1, and railway station, on line of O. & H. trolley; 1 mile from school; 2 miles from Protestant churches, butter factory and cheese factory; 5 miles from milk station. Highways, hilly but good. Nearest city, Oneonta, 13 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,600 feet. Soil, clay loam and muck. Acres in meadow, 100; in natural pasture, 50; in timber, 50, hardwood, pine and hemlock. Acres tillable, 150. Fruit, 100 apple trees. Best adapted to grass, oats, potatoes, buckwheat, corn and rye. Fences, wire and board, fair condition. House, 30x50, 2 stories with ell, 14 rooms, good condition. Outbuildings, barn, 36x90, 3 stories, good condition; barn, 25x40, fair condition; shop, 2 stories, 25x40, good condition, and hog pen, 15x25, good condition. Watered by spring and brook. Occupied by owner. Price, \$2,500, cash or \$1,000 down and \$2,000 on mortgage. Address H. A. Hubbard, Mt. Vision, N. Y.

* **No. 769**—Farm of 53 acres; located 4 miles from Mt. Vision P. O., R. D. No. 1, and railway station, on line of O. & H. trolley; ¼ mile from school; 3 miles from Protestant churches; 1 mile from butter factory and cheese factory; 4 miles from milk station. Highways, good. Nearest city, Oneonta, 12 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,500 feet. Soil, clay loam. Acres in meadow, 20; in natural pasture, 18; in timber, 15, hemlock, maple and beech. Acres tillable, 35. Fruit, apples, plums, pears and cherries. Best adapted to corn, potatoes, buckwheat, oats, rye, etc. Fences, barbed wire, good condition. House, 30x40, 9 rooms, new. Outbuildings, barn, 40x40, basement, good condition; wagon house, hog house and two hen houses. Watered by well, spring and brook. Occupied by owner. Reason for selling, ill health and advanced age of owner. Price, \$3,000. Terms, cash. Address H. A. Hubbard, agent, Mt. Vision, N. Y.

TOWN OF ONEONTA

Population 1,307

No. 770—Farm of 153 acres; located 7 miles from Oneonta P. O., R. D. No.

1; 3 miles from railway station at Portlandville, on line of D. & H. R. R.; 1 mile from school; ¼ mile from churches; 3 miles from milk station, cheese factory and milk condensing plant. Surface of farm, slightly rolling. Altitude, 1,700 feet. Soil, dark loam. Acres in natural pasture, 50; in timber, 50, hardwood, pine and hemlock. Fruit, apples, pears, plums, cherries, currants and strawberries. Adapted to small grain and potatoes. Fences, post and wire. House, 16 rooms, rebuilt 6 years ago, modern, first-class condition. Outbuildings, barn, 100x40, slate roof, stanchions for 52 cows and 7 horses; granary, separator room, cement floor throughout; wagon house, hen house, hog house and wood house. Watered, house by windmill, barn by well, fields by springs. Occupied by owner. Reason for selling, owner wants to give up farming. Price, \$50 per acre. Terms, ½ cash, balance on long time. Address S. P. Christensen, Oneonta, N. Y., R. D. No. 1.

TOWN OF OTEGO

Population 1,699

No. 771—Farm of 80 acres; located 3½ miles from Otego P. O., R. D. No. 4, and railway station, on line of D. & H. R. R.; ¼ mile from school; 3½ miles from Protestant churches and milk station; ½ mile from butter factory. Highways, good. Nearest city, Oneonta, 12 miles distant, reached by rail and highway. Surface of farm, rolling and level. Soil, red shale subsoil. Acres in meadow, 40; in natural pasture, 35; in timber, 5, hardwood, chestnut and pine. Acres tillable, 60. Fruit, apples, pears, cherries and berries. Best adapted to corn, potatoes, oats and millet. Fences, wire and wall, good condition. House, 24x28, new. Outbuildings, barn, 26x50, nearly new, concrete floors; wagon house and horse barn, 26x24, rebuilt 6 years ago; hog house and tool house. Watered by springs. Occupied by owner. Reason for selling, owner wants to go into other business. Price, \$4,000. Terms, \$1,000 down, balance on mortgage at 5% int. Address Earl Horton, Otego, N. Y.

No. 772—Farm of 167 acres; located 3½ miles from Otego P. O., R. D. No. 3, and railway station, on line of D. & H. R. R.; ¾ mile from school; 2½ miles

* Indicates farm is in hands of agent or real estate dealer.

from churches; $3\frac{1}{2}$ miles from milk station. Milk taken from farm by buyers' route. All macadamized road to farm except 1 mile. Nearest city, Oneonta, 7 miles distant. Surface of farm, sloping to east. Soil, reddish loam. Acres in meadow, 70; in pasture, 40; in timber, 15, mostly second growth, from 6 to 8 years old. Acres tillable, 90. Fruit, good orchard. Best adapted to oats, potatoes, buckwheat, hay and corn. Fences, wire and stone. House, 10 rooms, can be arranged for two families. Outbuildings, 1 barn, 40x70; barn, 30x40, good condition, all practically new roofs; hen house, hog house and milk house. Watered, running water to buildings by several never-failing springs. Unoccupied. Reason for selling, owner in other business. Price, \$5,000. Terms to suit purchaser. Address R. R. Lacey, 17 Mill Street, Binghamton, N. Y.

TOWN OF OTSEGO

Population 4,287

No. 773 — Farm of 230 acres; 3 miles from Otego P. O., R. D. 4; 3 miles from railway station at Otego and Wells-bridge, on line of D. & H. R. R.; 1 mile from school; 3 miles from Methodist, Baptist, Presbyterian churches; $1\frac{1}{4}$ miles from butter factory; 3 miles from milk station. Highways, good, part State road. Nearest city, Oneonta, population 9,491, 12 miles distant, reached by D. & H. R. R. and State road. Surface of farm, rolling upland, facing east. Altitude, 1,200 feet. Soil, red loam. Acres in meadow, 50; in natural pasture, 155; in timber, 25, second growth chestnut; acres tillable, 100. Fruit, 35 apple and 12 plum trees. Best adapted to hay, corn, oats, potatoes and hops. Fences, stone wall and wire, in good condition. House, 10 rooms, partly new. Basement barn, 40x75, new, concrete floor in stables. Stable for 45 cows; wagon house, 5 horse stalls; cow barn, with silo, 10x28. Watered, house by well, barns by spring near barn, fields by brook and springs. One mile from Susquehanna River. A very productive farm, good location, wintered 48 cows last winter and had 10 tons of hay left. Occupied by owner. Reason for selling, owner unable to secure help. Price, \$6,000. Terms, $\frac{1}{2}$ down, balance on mortgage at 5%. Owner will sell stock and tools if desired. Address J. E. Southard, Otego, N. Y.

TOWN OF PITTSFIELD

Population 917

No. 774 — Farm of 74 acres; located $4\frac{1}{2}$ miles from railway station at New Berlin, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school and church; $4\frac{1}{2}$ miles from cheese factory and milk condensing plant. Highways, somewhat hilly but good. Nearest city, Oneonta, 16 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,350 feet. Soil, hard pan loam. Acres in meadow, 20; in natural pasture, 35; in timber, 19, hardwood, beech and maple. Acres tillable, 55. Fruit, apples. Best adapted to oats, potatoes and buckwheat. Fences, wire, fair condition. House, 24x32, good condition. Basement barn, 26x40, good condition. Watered by well, spring and creek. Reason for selling, to close an estate. Price, \$1,300. Terms, cash. Address Arthur M. Cook, Albany, N. Y.

No. 775 — Farm of 98 acres; located 4 miles from railway station at New Berlin, on O. & W. R. R.; $\frac{1}{4}$ mile from school and Protestant church; 4 miles from butter factory and milk condensing plant; 3 miles from cheese factory. Highways, hilly but good. Nearest city Oneonta, 17 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,350 feet. Soil, hard pan loam. Acres in meadow, 25; in natural pasture, 60; in timber, 13, hemlock, maple and beech. Acres tillable, 50. Fruit, 100 apple trees. Best adapted to corn, potatoes, oats, peas and buckwheat. Fences, mostly wire, fair condition. House, 20x26, with wing, 18x30. Basement barn, 34x60, good condition. Watered by well, spring and creek. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$2,600. Terms, $\frac{1}{2}$ down, balance on mortgage. Address David H. Webster, New Berlin, N. Y., R. D. No. 3.

No. 776 — Farm of 74 acres; located 5 miles from New Berlin P. O., R. D. No. 5, and railway station, on line of O. & W. and W. V. Rys.; $\frac{1}{4}$ mile from school; 3 miles from churches and butter factory; 2 miles from cheese factory; 5 miles from milk station and milk condensing plant. Highways, hilly but good. Nearest city, Oneonta, 13 miles distant, reached by highway. Surface of farm, rolling and level, some stone. Altitude, 1,400 feet. Soil, loam.



FIG. 142.—GENERAL VIEW OF FARM NO. 772, TOWN OF OTEGO, OTSEGO COUNTY.



FIG. 143.—HOUSE ON FARM NO. 783, TOWN OF WORCESTER, OTSEGO COUNTY.

Acres in meadow, 32; in natural pasture, 25; in timber 17, mostly hardwood, some hemlock. Acres tillable, 45. Fruit, pears, apples, plums, cherries and strawberries. Best adapted to corn, potatoes and oats. Fences, wire, fair condition. House, 6 rooms, fair condition. Outbuildings, barn, 26x48; silo, 8x26; wagon house, 20x30; hen house, 12x24; granary, 10x20, fair condition. Watered by well, creek and springs. Occupied by owner. Reason for selling, owner wants a smaller farm. Price, \$1,400. Address Willis Birdsall, New Berlin, N. Y., R. D. No. 5.

TOWN OF PLAINFIELD

Population 844

No. 777 — Farm of 240 acres; located $\frac{1}{2}$ mile from West Winfield P. O., R. D. 2; $3\frac{1}{2}$ miles from railway station at West Winfield, on line of D., L. & W. R. R.; $\frac{1}{2}$ mile from school and Protestant church; 1 mile from cheese factory; $3\frac{1}{2}$ miles from milk station. Highways, somewhat hilly. Nearest city, Utica, 20 miles distant, reached by rail and highway. Surface of farm, hilly, rolling and level. Altitude, about 1,500 feet. Soil, clay loam, good. Acres in meadow, 50; in natural pasture, 125; in timber, 40, beech, birch, maple and basswood. Acres tillable, 75. Fruit, 60 apple trees. Best adapted to grass, grain, corn and potatoes. Fences, mostly post and wire, good. House, $1\frac{1}{2}$ stories, 10 rooms, fair condition. Outbuildings, barn, 100x30, with basement, nearly new; good silo, 16x28; barn, with basement, 24x60, good condition; pig pen, in fair condition. Occupied by tenant. Reason for selling, owner has other farms. Price, \$6,000. Terms, $\frac{1}{3}$ cash, balance on bond and mortgage. Address S. E. Armstrong, Unadilla Forks, N. Y.

TOWN OF WORCESTER

Population 2,185

* No. 778 — Farm of 337 acres; 2 miles from Worcester. House and barn old. First-class spring water, also creek. Part cleared, rest being cleared or will be within six years, as timber has been sold. Would make a good sheep farm. Price, \$5,000. Address Silas W. Ferguson, Worcester, N. Y.

* No. 779 — Farm of 105 acres; 2 miles from Worcester P. O. and station, on D. & H. R. R. Good soil. Sixty acres

pasture and meadow. No buildings. Spring water. Price, \$1,500. Terms, easy. S. W. Ferguson, owner, Worcester, N. Y.

* No. 780 — Farm of 102 acres; $2\frac{1}{2}$ miles from East Worcester. Very fine farm for summer home. Ten acres of timber; 50 meadow. Ten-room house, excellent condition. Barn, 40x45; stable, 20x30; wagon house, 25x40; several other barns and outbuildings, all good. Well watered and fenced. Price, \$7,000. Address H. L. Reed, agent, Amsterdam, N. Y.

No. 781 — Farm of $22\frac{1}{2}$ acres; about 3 city blocks from East Worcester P. O. and railway station, on line of D. & H. R. R.; 400 feet from school; 6 city blocks from Methodist and Baptist churches; 5 minutes from butter factory and milk station; 3 miles from cheese factory. Fine road and street. Place located in village, population 600. Surface of farm, part level, part side hill, southern exposure. Altitude, 1,500 feet. Acres in meadow, 10; in timber, 1, young maples; acres tillable, 20. Fruit, 5 choice apple trees, several cider apple trees, 20 young apple trees, pears and cherries. Best adapted to potatoes, hay and corn. Fences, wire and stone. House, 40x40, rebuilt within two years, bath, laundry, hot air heater, and all modern improvements. Barn, 23x63, in fine condition, recently rebuilt; new ice house (filled). Watered, house by spring, barn from house, fields by 4 springs. One mile from Bennetts Lake. Hills surround the village. Owner bought this place 2 years ago and rebuilt it, putting in all modern improvements, including private lighting plant. Village has electric light and water. Occupied by owner. Reason for selling, owner wishes to move on account of ill health of family. Price, \$4,500. Terms, to suit buyer. Ira Mannory, East Worcester, N. Y. Owner will rent.

No. 782 — Farm of 50 acres; located in village of Worcester, on line of Susquehanna & D. & H. R. R.; $\frac{1}{4}$ mile from churches; $\frac{1}{4}$ mile from milk condensing plant. Soil, mostly loam. Acres in meadow, 30; in natural pasture, 20. All tillable. Best adapted to corn, oats, wheat, rye, buckwheat, peas and beans. Fences, wire, good. House, nearly new,

* Indicates farm is in hands of agent or real estate dealer.

11 rooms, 2 stories, bath room in house. Outbuildings, barn, 30x40; wagon house, 22x30; bee house, 12x16; shed, 16x24; ice house, 12x16. Watered by lake, springs and creek. Occupied by owner. Reason for selling, ill health of owner. Price, \$6,000. Terms, easy. Address John Howe, Worcester, N. Y.

* No. 783 — Farm of 22 acres; located at East Worcester, on line of D. & H. R. R.; 5 minutes' walk from school and churches. State road. Surface of farm, nearly level. Soil, loam. 1 acre in timber. Acres tillable, 21. Fruit, apples and some other fruit. Best adapted to fruit, poultry and gardening. Fences, wire and stone. House, 2 stories, 8 rooms, modern plumbing, improvements. Outbuildings, overshot barn, 26x36, with basement; ice house and poultry house, good condition. Occupied by owner. Village water. Reason for selling, owner wants to go south to live with daughter. Price, \$4,200. Terms, \$2,250 down. Address J. H. Fort, agent, Stone Bldg., Oneida, N. Y.

No. 784 — Farm of 218 acres; located 3 miles from Worcester P. O. and railway station, on line of D. & H. R. R.; ¼ mile from school; 3 miles from cheese factory, milk condensing plant, Catholic and Protestant churches; 2½ miles from milk station. Highways, somewhat hilly but good. Surface of farm, smooth, some rolling. Soil, loam. Acres in meadow, 45; in natural pasture, 40; in timber,

93, hardwood and hemlock. Acres tillable, 40. Fruit, apples, pears and plums. Best adapted to potatoes, buckwheat and dairying. Fences, mostly wire, good condition. Double house, 18x24; two wings, 18x24. Outbuildings, overshot barn, 100x37; hop house, 24x36. Running water at house and barn, fields watered by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,000. Terms, easy. Address Albert Wilson, Worcester, N. Y.

No. 785 — Farm of 170 acres; located 3 miles from railway station at Worcester, on line of D. & H. R. R.; ¼ mile from school; 2 miles from Methodist church; 2½ miles from butter factory, cheese factory, milk station and milk condensing plant. Highways, good. Surface of farm, rolling. Soil, slaty but good. Acres in meadow, 40; in natural pasture, 60; in timber, 40, oak, beech, maple and basswood. Acres tillable, 40. Fruit, 150 trees, good bearing. Best adapted to potatoes, oats, hops and dairying. Fences, wire, good condition. House, 9 rooms, good condition. Outbuildings, basement barn, 36x50; stalls for 22 head of cattle besides horses. Watered by well, springs and stream. Occupied by tenant. Reason for selling, owner a widow and advanced in years. Price, \$4,500. Terms, part cash, balance on bond and mortgage. Address Lucinda White, Worcester, N. Y. Owner will rent.

PUTNAM COUNTY

Area, 241 square miles. Population, 14,665. Annual precipitation 54.67 inches. Annual mean temperature, 50.8°. Number of farms, 973. County seat, Carmel.

This county is located in the southeastern part of the state bordering on Connecticut. It is bounded on the west by the Hudson River and is drained by the Croton River and Peekskill Creek.

The surface is hilly and while it presents scenery only a part of the soil is suitable for farming. The Matteawan and Peekskill mountains extend into the western and central parts of the county, while the Taghkanick Mountains are located in the eastern part. Between these ranges is a valley three or four miles wide with black loam soil. This valley extends from the northern border about half way across the county, then broadens into a wide undulating plain containing black and gravelly loam. In the vicinity of Cold Spring and extending east and north is another valley having a clay loam soil. Among its features of interest are the highlands of the Hudson and Lake Mahopac, a popular summer resort. Marble of excellent quality is extensively quarried and rich mines of iron ore are also found. The leading crops are corn, 124,228 bushels; oats, 19,022 bushels; rye, 4,559 bushels; potatoes, 85,494 bushels; hay and forage, 29,087 tons. Value of all farm property, \$8,851,342, an increase of 14.6 per cent. during the last decade. Domestic animals

* Indicates farm is in hands of agent or real estate dealer.

are as follows: Dairy cows, 8,425; horses, 2,195; swine, 2,392; sheep, 1,220; poultry, 50,167; milk product, 5,080,275 gallons; receipts of dairy products, \$583,016.

The county is traversed by the Harlem and Putnam divisions of the N. Y. C. & H. R. R. R., and the N. Y., N. H. & H. also passes through a portion of the county. There are 56 district schools. Drew Seminary and Female College is located at Carmel. Cold Spring has a large iron plant. Many poultry farms are located in this district. There are six agricultural organizations in the county, the purpose of which is to promote the farmers' interest.

TOWN OF CARMEL

Population 2,610

* No. 786 — Farm of 182½ acres; located three miles from Carmel P. O. and railway station, on line of N. Y. C. R. R. State road. Surface of farm, rolling. Acres in meadow, 100; in natural pasture, 50; in timber, 30. Acres tillable, 100. Best adapted to hay, grain or garden truck. House, small, fair condition. Outbuildings, good size, fair condition. Watered, house by well and spring, barns by spring, fields by springs and brooks. Occupied by tenant. Reason for selling, owner in other business. Price, \$10,500. Terms, \$5,500 cash, balance on mortgage at 5½%. A fine creek forms entire eastern boundary of farm. Address H. O. Palen, agent, Highland, N. Y.

TOWN OF KENT

Population 968

* No. 787 — Farm of 182½ acres; located 3 miles from railway station at Holmes, on line of Harlem Division of N. Y. C. R. R.; ½ mile from school; 2 miles from churches and milk station; 3 miles from butter factory. Highways, State road. This farm is 45 miles from New York, reached by rail. Surface of farm, rolling and level. Altitude, 700 feet. Soil, good, rich, deep loam. Acres

in natural pasture, 52½; acres in timber, 30; acres tillable, 100. Best adapted to alfalfa and fruit. Fences, rail and wire, fair condition. House, 2 stories, 8 rooms. Outbuildings, large barn, 28x100. Watered by springs. Occupied by tenant. Reason for selling, owner in other business. Price, \$10,000. Terms, \$4,000 cash, balance on mortgage. Address J. P. Christensen, agent, 320 Fifth Avenue, New York, N. Y.

TOWN OF PHILLIPSTOWN

Population 5,345

No. 788 — Farm of 129 acres; 4 miles from Nelsonville P. O., R. D.; 4½ miles from Cold Spring railway station and the Hudson River. State road. Soil, clay loam. Acres in meadow, 80; acres natural pasture, 37; acres timber, 12. House, 56x60, needs some repairing. Barn, 34x43, in fair condition. Watered by springs and 3 wells. Fences, wall, rail and wire, in fair condition. This farm is near lakes, churches, schools and mills and is located amidst the most beautiful scenery. The land is good and very productive. Would make a beautiful country residence. Price, \$5,500. Terms, easy. Address George Wright, Cold Spring-on-Hudson, N. Y. Owner will rent.

RENSSELAER COUNTY

Area, 650 square miles. Population, 132,276. Annual precipitation, 42.5 inches. Annual mean temperature, 46°. Number of farms, 3,654. County seat, Troy.

This county is favorably located in the eastern part of the state bordering on Massachusetts on the east and the Hudson River on the west.

The surface is mostly hilly and partly mountainous, the Taconic mountains rising to the height of about 2,000 feet in the eastern part of the county. The Hoosic River Valley divides these into separate ranges.

The soil of this valley is clay and gravelly or slaty loam with hardpan subsoil. The range of hills near the center of the county is excellent for pasturage and dairying, the cultivation of potatoes also bringing good returns. The soil of this section is a conglomerate of sandstone and shale. Between these hills and the Hudson River the land is less rolling and general farming is profitably conducted. The reports on the products of the county are as follows: Corn, 408,503 bushels; oats, 516,979 bushels; buckwheat, 81,974 bushels; rye, 213,343 bushels; potatoes, 1,142,796 bushels; hay and forage, 96,129 tons. The total value of all farm property

* Indicates farm is in hands of agent or real estate dealer.

is \$18,216,934. This is an increase within the last ten years of 19.1 per cent. The average price of improved land in the county is \$35.86 per acre. The buildings in this county are worth one million dollars more than the land. There are farms that can be bought for less than the value of the buildings. Domestic animals are reported as follows: Dairy cows, 19,804; horses, 8,666; swine, 12,081; sheep, 25,190; poultry, 184,489; total production of milk, 10,001,020 gallons; the receipts from dairy products was \$1,198,481. The county is intersected by the N. Y. C. & H. R. R., Fitchburg and the branches of the D. & H. railroads which center at Troy. The Rensselaer Polytechnic Institute, Emma Willard Female Seminary and a Catholic Theological Seminary are located at Troy. The cities of Troy, Rensselaer and Hoosick Falls lie within the county having a united population of about 100,000 people, and furnish a market for the farm products, while Albany and other nearby cities add to the great market facilities of the county. There are two important electric lines from Rensselaer to Hudson and from Troy to Averill Park in the center of the county. There are numerous lakes, ponds and streams of excellent water affording abundant supply. There are 162 district schools, 75 miles of state and county roads, 1,202 miles of graded and improved highways, leaving only 11 miles of highway in the county not improved. The soil and climate are excellent for growing apples and other fruit. The farmers of the county have organized 12 different societies to further their farming interest.

TOWN OF BERLIN

Population 1,615

* No. 789 — Farm of 25 acres, located $1\frac{1}{4}$ miles from South Berlin P. O., $1\frac{1}{2}$ miles from railway station at South Berlin, on line of Rutland Division of N. Y. C. R. R.; $1\frac{1}{2}$ miles from school and milk station; $1\frac{1}{4}$ miles from Protestant churches and creamery. Highways good. Nearest city, Pittsfield, Mass., 17 miles distant, population about 30,000, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,500 feet. Soil, gravelly loam. Acres in meadow, 12; in natural pasture, 6; in timber, 7, hard wood, good. Acres tillable, 12. Fruit, 40 apple trees, a few plums and pears. Best adapted to corn, potatoes, oats, hay and berries. Fences, wire and board, good. House, 7 rooms. Outbuildings, barn, 20x26, and several other outbuildings, good condition. Watered, house and barn by spring, fields by spring and stream. Occupied by owner. Reason for selling, owner a woman and advanced in age. Price, \$1,000. Terms, \$400 cash, balance on mortgage at 5%, easy payments. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 790 — Farm of 127 acres, located $1\frac{1}{4}$ miles from Center Berlin P. O. and railway station, on line of Rutland Division of N. Y. C. R. R.; $1\frac{1}{4}$ miles from school and milk station, 2 miles from Methodist church and creamery. Highways good. Nearest city,

Pittsfield, Mass., 19 miles distant, population about 30,000, reached by rail and highway. Surface of farm rolling. Altitude about 1,500 feet. Soil, slate loam. Acres in meadow, 50; in natural pasture, 37; in timber, 40, beech, birch, oak and hemlock. Acres tillable, 50. Fruit, 40 apple trees, a few pears and plums. Best adapted to hay, corn, oats, buckwheat, potatoes and berries. Fences, wire, good. House, 8 rooms and closets, first-class condition. Outbuildings, barn, 24x50; two silos, horse barn, wagon shed, etc. Watered, house and barn by spring, fields by stream. Occupied by owner. Reason for selling, owner has other business. Price, \$2,500. Terms, \$1,250 cash, balance on mortgage at 5%. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 791 — Farm of 240 acres, located $2\frac{1}{2}$ miles from Berlin P. O. and railway station, on line of Rutland Division of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from Protestant churches and milk station; 3 miles from cheese factory and milk condensing plant. Highways good. Nearest city, North Adams, Mass., 11 miles distant, population about 25,000, reached by rail and highway. Surface of farm somewhat hilly. Altitude about 1,600 feet. Soil, clay loam. Acres in meadow, 100; in natural pasture, 110; in timber, 30, beech, birch and maple. Acres tillable, 200. Fruit, 100 apple trees, pears, plums and cherries. Best adapted to hay, oats, buck-

* Indicates farm is in hands of agent or real estate dealer.

wheat, potatoes and fruit. Fences, wire, good. House, 2 stories, 12 rooms, fine condition. Outbuildings, barn, 34x40; barn, 25x80, good condition. Watered, house by well, barns and fields by stream. Occupied by owner. Reason for selling, ill health of owner. Price, \$5,800. Terms, \$2,500 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 792 — Farm of 210 acres; $\frac{1}{2}$ mile from South Berlin P. O.; $\frac{1}{4}$ mile from railway station at South Berlin, on line of Rutland Division of the N. Y. C. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from church; $4\frac{1}{2}$ miles from cheese factory and condensing plant; $\frac{1}{2}$ mile from cream station. Highways, good. Nearest city, Pittsfield, Mass., population 25,000, 17 miles distant, reached by rail and highway. Surface, rolling. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 75; in timber, 85, beech, birch, ash, oak, maple, etc.; acres tillable, 100. About 50 apple trees. Fences, stone and wire. Large 10-room house, in good condition; large woodhouse attached; open fireplaces. Large barn, in good condition. Watered by spring, in house. One and one-half miles from Taconic Mountains. House is pleasantly located on main highway, fine row of maple shade trees; sugar bush. Occupied by tenant. Reason for selling, owned by two women who cannot work it. Price, \$4,000. Terms, \$2,500 cash, rest on mortgage. Address A. O. Mattison, South Berlin, N. Y.

* No. 793 — Farm of 220 acres; 1 mile from Center Berlin P. O.; 1 mile from railway station at Center Berlin, on line of Rutland Division of the N. Y. C. R. R.; 1 mile from school; 3 miles from churches, cheese factory and condensing plant; $3\frac{1}{4}$ miles from cream station. Highways, good, some hilly. Nearest large village, Hoosick Falls, population about 5,500, 16 miles distant, reached by rail and highway. Surface, part hilly and part rolling. Soil, clay and gravelly loam. Acres in meadow, 20; in natural pasture, 90; in timber, 110, beech, birch, oak, maple and some soft timber; acres tillable, 50. Best adapted to hay, oats, potatoes, buckwheat and corn. Fences, wire, good condition.

House, 7 rooms, nearly new. Barn, in good condition. Watered by well and brook. Two miles from Taconic Mountains. Occupied by owner. Reason for selling, owner has another farm. Price, \$1,200. Terms, \$500 down, balance on mortgage. This farm has a good lot of timber which is easily accessible, is well watered and liberal terms will be given. Address A. O. Mattison, South Berlin, N. Y.

* No. 794 — Farm of 290 acres; 2 miles from Berlin P. O. and railway station at Berlin, on line of Rutland Division of the N. Y. C. R. R.; 20 rods from school; 2 miles from churches, cheese factory and condensing plant. Highways, good. Nearest large village, Hoosick Falls, population about 5,500, 14 miles distant, reached by rail and highway. Surface, part level, part rolling and part hilly. Soil, gravelly loam. About 100 apple and pear trees. Best adapted to hay, oats, buckwheat and potatoes. Fences, principally wire. Old-fashioned, low house, 12 rooms, good condition. Cow barn, 40x60, posts 22-foot stanchions and stalls for 60 head of cattle; stone silo, 17x32; horse barn and carriage house, 26x42; shed, 30x34, with hay loft connects the main barn with horse barn; barn, 26x26, with room for 16 head of cattle; storehouse for farm machinery; a hog house, dairy house, icehouse and several other buildings; all well constructed, covered with novelty siding and in good condition. Watered by spring and well. Taconic Mountains, $1\frac{1}{2}$ miles distant. This farm has a sugar bush of 1,000 fine maple and sugar house. Also has over 2 miles of trout brook. Occupied by tenant. Reason for selling, owner has other business. Price, \$6,000. Terms, \$2,500 down, balance on mortgage. Address A. O. Mattison, South Berlin, N. Y.

* No. 795 — Farm of 150 acres, located 2 miles from Berlin P. O. and railway station, on line of Rutland Division of N. Y. C. R. R.; $1\frac{1}{2}$ miles from school; 2 miles from milk station and Protestant churches; $2\frac{1}{2}$ miles from cheese factory; $2\frac{1}{4}$ miles from milk condensing plant. Highways hilly. Nearest city, Troy, 16 miles distant, reached by rail and highway. Surface

* Indicates farm is in hands of agent or real estate dealer.

of farm rolling. Altitude, 2,000 feet. Soil, limestone. Acres in meadow, 50; in natural pasture, 50; in timber, 50, spruce, maple and birch. Acres tillable, 50. Fruit, apples, pears, plums and cherries. Best adapted to hay, grain and berries. Fences, wire, fair condition. House, 7 rooms, poor condition. Barn, 70x25, fair condition; wood house and carriage house. Watered, house by well, barn and fields by stream. Farm adjoins Kendall's Lake. Occupied by owner. Reason for selling, owner has another farm. Price, \$1,800. Terms, \$1,200 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

*No. 796—Farm of 310 acres; located $\frac{1}{2}$ mile from Center Berlin P. O. and railway station; on line of Rutland Division of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and milk station; 2 miles from cheese factory, milk condensing plant and Protestant churches. Highways good. Nearest city, Pittsfield, 18 miles distant, reached by rail and highway. Surface of farm, part level and part hilly. Altitude, 1,000 ft. Soil, lime, good. Acres in meadow, 100; in natural pasture, 100; in timber, 110, maple, oak, ash, birch, etc. Acres tillable, 150. Fruit, 200 apple trees, also pears, plums and cherries. Best adapted to hay, grain and potatoes. Fences, stone, wire and board. Two large houses, good condition. Outbuildings, 10 large barns, two silos, sugarhouse etc., all in fine condition. Watered, piped from spring to house and barns, fields watered by springs and creek. Occupied by owner. There are about 2,000 large sugar maples. Reason for selling, owner has another large farm. Price, \$10,000. Terms, \$5,000 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

*No. 797—Farm of 300 acres; located $1\frac{1}{2}$ miles from South Berlin P. O.; $1\frac{1}{4}$ miles from railway station at South Berlin, on line of Rutland Division of N. Y. C. R. R.; $1\frac{1}{4}$ miles from school, $1\frac{1}{2}$ miles from Methodist church and milk station. Highways, good. Nearest city, Pittsfield, 6 miles distant, reached by rail and highway. Surface of farm, rolling and hilly. Altitude, 1,500 ft. Soil, loam. Acres in meadow, 60; in

natural pasture, 100; in timber, 140, spruce, hemlock, maple, oak and ash. Acres tillable, 100. Fruit, apples, plums, pears, cherries and berries. Adapted to any crop grown in this climate. Fences, woven wire, first-class condition. House, large, 12 rooms, good condition. Outbuildings: basement barn 50x64, carriage house and work shop, horse barn, sugar house, hen house, tool house and several other buildings. Spring water piped to house and barns, fields watered by brook. Occupied by owner. Reason for selling, owner has other business. Price, \$8,000. Terms, \$4,000 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

*No. 798—Farm of 92 acres; located $\frac{3}{4}$ mile from South Berlin P. O.; 1 mile from South Berlin railway station, on line of Rutland Division of N. Y. C. R. R.; 1 mile from school; $\frac{3}{4}$ mile from milk station and Methodist church. Highways, good. Nearest city, Pittsfield, 17 miles distant, reached by rail and highway. Surface of farm, part level and part rolling. Altitude, 1,200 ft. Soil, gravelly loam. Acres in meadow, 30; in natural pasture, 20; in timber, 42, maple, oak, beech, etc. Acres tillable, 50. Fruit, apples, plums, pears and cherries. Best adapted to hay, corn, oats, buckwheat and potatoes. Fences, wire and board, good condition. House, 9 rooms, good condition. Outbuildings: several good size barns, fair condition. Watered by well, spring and brook. Occupied by owner. Reason for selling, owner has another farm. Price, \$2,700. Terms, \$1,500 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

No. 799—Farm of 140 acres; located $1\frac{1}{2}$ miles from Center Berlin P. O. and railway station, on line of Rutland R. R.; $1\frac{1}{2}$ miles from school, cheese factory and milk station; 2 miles from Protestant church; 3 miles from milk condensing plant. Nearest city, Pittsfield, 19 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,500 ft. Soil, slate loam. Acres in meadow, 50; in natural pasture, 40; in timber, 50; maple, beech and birch. Acres tillable, 40. Fruit, apples, pears, plums and cherries. Best

* Indicates farm is in hands of agent or real estate dealer.



FIG. 144.—HOUSE ON FARM NO. 799, TOWN OF BERLIN, RENSSELAER COUNTY.



FIG. 145.—BUILDINGS ON FARM NO. 1050, TOWN OF SPENCER, TIOGA COUNTY.



adapted to hay, corn, oats, buckwheat, potatoes and berries. Fences, wire, good condition. House 43x30, 1½ stories, 3 rooms. Outbuildings: basement barn, shed and carriage house, hen house, wood house, granary and sap house. Watered, house and barns by running water, fields by brook and springs. Occupied by owner. Reason for selling, owner in other business. For price and terms address M. H. Bentley, Center Berlin, N. Y.

No. 800—Farm of 70 acres; located 1¼ miles from Center Berlin P. O. and railway station, on line of Rutland R. R.; 1¼ miles from school; 2 miles from churches; 1½ miles from cheese factory; 1¼ miles from milk station; 3 miles from milk condensing plant. Highways, good. Nearest city, Pittsfield, 19 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,500 ft. Soil, slate loam. Acres in meadow, 25; in natural pasture, 20; in timber, 25, maple and beech. Acres tillable, 40. Fruit, apples and cherries. Best adapted to hay, corn, oats, potatoes and buckwheat. Fences, wire, good. House 22x30, new, 9 rooms. Outbuildings: barn 45 feet long with basement for stock and sap house, fair condition. Watered by springs. Occupied by tenant. For price and terms address Mrs. M. H. Bentley, Center Berlin, N. Y.

TOWN OF EAST GREENBUSH

Population 1,350

*No. 801—Farm of 108 acres; located on line of Albany Southern R. R.; 8 miles from Albany P. O.; 1 mile from school and Lutheran church. Highways in excellent condition. Surface of farm, rolling. Soil, light, clay loam. Acres in timber, 12; acres tillable, 96. Fruit, 100 apple, 12 pear, 12 plum, 12 cherry trees, bearing. Best adapted to fruit, grain, hay and dairying. Fences, wire, good condition. House, built for two families, 17 rooms, good condition. Outbuildings: barn 32x68, steel roof, cow barn 18x55, shingle roof, carriage barn 28x22, steel roof, all in good condition. Watered, house and barns by wells, fields by springs and streams. This farm is near Hudson River. Occupied by owner. Price, \$6,000. Terms, \$4,000 cash. Address Frank M. Knox, agent, 51 State St., Albany, N. Y.

TOWN OF HOOSICK

Population 8,315

No. 802—Farm of 120 acres; 3¼ miles from Hoosick Falls P. O., R. D. 3; 3¼ miles from railway station at Hoosick Falls, on line of B. & M. R. R.; ¾ mile from school; 3½ miles from churches; 4 miles from butter factory; 3½ miles from milk station. Highways, good. Nearest large village, Hoosick Falls, population 5,500, 3½ miles distant, reached by highway. Surface, rolling. Soil, slate. Acres in meadow, 60; in natural pasture, 35; in timber, 25, oak and pine; acres tillable, 95. Some apple trees. Best adapted to hay, oats, corn, rye, buckwheat, potatoes and beans. Fences, board and braided wire. House, 15 rooms, fair condition. Four barns, hog house, corn house, hen house, wool room, shop, wagon house and tool-house. Watered by cistern and wells. Green Mountains 8 miles, Mt. Anthony 6 miles distant. This property is desirable, being situated on high ground with very fine view. Was settled over 100 years ago by an ancestor of the present owner, and has been handed down from father to son. Occupied by owner. Price, \$5,000. Address Merritt C. Ostrander, Hoosick Falls, N. Y.

No. 803—Farm of 108 acres; 6 miles from Hoosick Falls P. O., R. D. 2; 4 miles from railway station at Hoosick, on line of B. & M. R. R.; 40 rods from school; 100 rods from Methodist church; 4 miles from butter factory and cheese factory. State road soon to be built. Surface of farm, rolling. Soil, loam, with hardpan bottom. Acres in meadow, 60; in natural pasture, 25; in timber, about 15, oak, pine, etc.; acres tillable, 70. Fruit, apples, pears, plums and 15 varieties of grapes. Adapted to all kinds of grain. Fences, wire, fair condition. House, 20 rooms, large enough for 2 families, putting in heating plant, good condition. Also tenant house. Outbuildings: cow barn, 30x50, with basement and shed; horse barn, 28x50, 5 stalls; sheep barn, 28x40, with basement; barn, 54x30, ice house and tank of cement for cooling milk. Watered, house, by running water and well; cow barn, by running water. Reason for selling, poor health of owner. Price, \$6,200. Terms, ½ down, balance on time with good security. Owner has

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72-acre hill lot pasture and wood lot combined which he will let go with farm at small price. Address Levi N. Gardner, Hoosick Falls, N. Y., R. D. 2.

No. 804 — Farm of 52 acres; located $4\frac{1}{2}$ miles from Hoosick P. O., R. D. 2, and railway station, on line of Boston & Maine R. R.; $\frac{1}{2}$ mile from school and Methodist church; 3 miles from milk station; $4\frac{1}{2}$ miles from butter factory. Highways, State road except $\frac{1}{2}$ mile. Nearest large village, Hoosick Falls, $7\frac{1}{2}$ miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 500 ft. Soil, gravelly loam. Acres in meadow, 40; in natural pasture, 12. Acres tillable, 50. Fruit, apples, cherries and plums. Best adapted to general farming. Fences, mostly wire, fair condition. House, 2 stories, good size, good condition. Outbuildings: large barn, wagon house, granary and hen house. Watered, house by cistern and well, barn by spring, fields by brook which runs through farm. Occupied by tenant. Reason for selling, owner a widow. Price, \$1,600. Terms, one-half cash, balance easy. Address Mary J. Broughton, 158 Church St., Hoosick Falls, N. Y.

No. 805 — Farm of 200 acres; located $1\frac{1}{2}$ miles from Hoosick Falls P. O., R. D. 3, and railway station, on line of Boston & Maine R. R.; $1\frac{1}{4}$ miles from school; $1\frac{1}{2}$ miles from milk station, Catholic and Protestant churches; 2 miles from butter factory. Highways in good condition. Nearest city, Troy, 20 miles distant, reached by rail and highway. Surface of farm, rolling and level river bottom land. Altitude about 440 ft. Soil, clay loam, gravelly loam and river bottom soil. Acres in meadow, 135; in natural pasture, 55; in timber, 10; mostly oak, some white wood. Acres tillable, 190. Fruit, cherries, plums, pears, grapes, currants and apples. Best adapted to corn, grain and grass. Fences, board and wire, fair condition. House, large, colonial style, 14 rooms, excellent condition. Outbuildings, horse barn for 9 horses, cow barn, 32 stanchions, 3 storage barns, silo, granary, pig pen, shop, wagon, ice and poultry houses, first-class condition. Watered by well, cistern and springs. Occupied by owner. Reason for selling, advanced age of owner. For price and terms, which will be reasonable, address R. P. Haswell, Hoosick Falls, N. Y.

TOWN OF NORTH GREENBUSH

Population 1,293

No. 806 — Farm of 72 acres; 4 miles from Troy P. O., R. D. 4; 4 miles from railway station at Troy, on line of N. Y. C. R. R.; 1 mile from school; 2 miles from churches. Nearest cities, Troy, about 4 miles distant; Albany, 6 miles distant, reached by State road. Surface of farm, gently sloping. Soil, sand and gravel. Acres in meadow, 10; in timber, 7, oak and other hard wood. Fruit, apples and cherries. Best adapted to potatoes, garden truck and grain. House, 14 rooms, pantry, 2 store rooms, excellent condition. Outbuildings: barn, 40x40; shed, 20x40; good condition. Watered by well and cistern. Hudson river 1 mile from farm, and several small lakes from 3 to 10 miles. Occupied by owner. Reason for selling, owner wants smaller place. Price, \$8,000. Terms cash. Address F. C. Kinney, care Kennedy's Store, Mill Street, Troy, N. Y.

No. 807 — Farm of 80 acres; located 6 miles from Troy, R. D. 4; 2 miles from railway station at Rensselaer, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and Dutch Reformed church. Highways, good. Nearest cities, Albany and Rensselaer, 2 miles distant. Surface of farm, level. Soil, clay loam. Acres in meadow, 50; in natural pasture, 20; in timber, 10, small. Acres tillable, 70. Fruit, 100 young trees. Best adapted to corn, potatoes and hay. House, fair size and in good condition. Barns, good size. Watered by creek which runs through farm near house. Occupied by owner. Reason for selling, owner wants to retire from farming business. Price, \$7,000. Terms, part down. Address Levi Van Acker, Troy, N. Y., R. D. 4.

TOWN OF PETERSBURG

Population 1,238

No. 808 — Farm of 33 acres; 2 miles from Petersburg P. O., R. D. 1, and railway station, on line of Rutland R. R.; 1 mile from school; 2 miles from churches and butter factory. Highways, somewhat hilly, but good. Nearest large village, Hoosick Falls, population about 5,500, 14 miles distant, reached by rail and highway. Surface of farm, rough. Soil, loam. Acres in meadow, 14; in natural pasture, 4; in timber, 15, beech and maple; acres till-

able, 15. Fruit, about 30 trees. Best adapted to potatoes and corn. Fences, in poor condition. House, 26x36, in fair condition. Outbuildings, in poor condition. Watered by spring. Occupied by tenant. Reason for selling, owner has another place. Price, \$1,000. Terms, cash. Address Amanda Littlefield, Petersburg, N. Y. Owner will rent.

2 stories and attic, brick. Outbuildings: barn, 42x45, shed attached; wood house; wagon house; store house. Watered by well and stream. Occupied by owner. Reason for selling, owner wants to retire. This would make an excellent summer residence. Price, \$6,500. Terms, ½ cash. Address David H. Lown, West Sand Lake, N. Y., R. D. 1.

No. 809—Farm of 460 acres; located 2 miles from Petersburg P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; ¼ mile from school; 2 miles from butter factory, milk station and Protestant churches. Highways, State road. Nearest large village, Hoosick Falls, 9 miles distant, reached by rail. Surface of farm, level and rolling. Soil, loam. Acres in meadow, 150; in natural pasture, 150; in timber, 160, beech, oak, maple and pine. Acres tillable, 250. Fruit, 500 apple trees. Best adapted to potatoes, corn and grain of all kinds. Fences in good condition. House 42x30, with wing 28x30, and tenant house 40x30, good condition. Outbuildings: good barn 40x60, barn 18x30, cow barn 40x30, barn 40x50, barn 38x30, barn 24x30, store house 30x40, granary 30x40, hog house 23x30 and blacksmith shop. Watered by running water and spring. Occupied by tenant. Reason for selling, owner has other business. Price, \$10,000. Terms, one-third down. This is a good stock farm. Address F. E. Reynolds, Petersburg, N. Y.

TOWN OF SAND LAKE

Population 2,128

No. 810—Farm of 146 acres; 3 miles from West Sand Lake P. O., R. D. 1; 9 miles from railway station at Rensselaer, on line of N. Y. C. R. R.; ½ mile from school; 3 miles from churches. Highways, good. Nearest city, Rensselaer, reached by trolley and State road. Two trolleys within two miles of farm. Surface of farm, rolling. Altitude, about 500 feet. Soil, mostly gravel. Acres in meadow, 20; in natural pasture, 35; in timber, 30, chestnut, oak, hemlock, hickory, etc. All tillable except woodland. Fruit, apples, pears, peaches, cherries and plums. Best adapted to hay, grain, potatoes, etc. Fences, wire, rail, fair. House, 40x30,

* No. 811—Farm of 40 acres, located 1½ miles from Averill Park P. O. and railway station, on line of New England R. R.; ½ mile from school and churches. Highways in good condition. Nearest city, Troy, 8 miles distant, population about 80,000, reached by rail and highway. Surface of farm, gentle slope. Altitude, 1,000 feet. Soil, strong loam. All tillable. Fruit, apples, pears, plums, cherries, grapes and berries. Best adapted to hay, grain and fruit. Fences, wire, good. House, large, 17 rooms, Colonial, 6 fire places, 4 piazzas, excellent condition. Outbuildings large and good, also shop, 2 stories, could be made into dwelling. Watered by springs. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$7,500. Terms, ½ cash. Address Frank H. Knox, agent, 51 State st., Albany, N. Y.

* No. 812—Farm of 120 acres, located 1 mile from West Sand Lake P. O.; ½ mile from school; 1 mile from Catholic and Protestant churches. Highways, State road. This farm is 8 miles from Troy and 7 miles from Albany, reached by rail and highway. Surface of farm, all level except one field. Altitude, 500 feet. Soil, black and gravel loam. Acres in meadow, 50; in natural pasture, 10; in timber, 10, chestnut, oak, pine, large second growth. Acres tillable, 100. Fruit, apples, pears, cherries and plums. Best adapted to hay, grain, fruit and dairying. Fences, wire, board and stone, good condition. House, large, modern, 12 rooms, excellent condition. Outbuildings: large barn, wagon house and sheds, fair condition. Watered by well, brook and springs. Occupied by owner and tenant. Reason for selling, advanced age of owner. Price, \$5,500. Terms, one-half cash. Address Frank H. Knox, agent, 51 State st., Albany, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF SCHAGHTICOKE

Population 2,780

* No. 813 — Farm of 137 acres, located $1\frac{1}{2}$ miles from Valley Falls P. O. and railway station, on the line of B. & M. R. R.; $\frac{1}{2}$ mile from school and $1\frac{1}{2}$ miles from churches and milk station. Highways in excellent condition. Nearest city, Troy, 12 miles distant, population about 80,000, reached by rail and highway. Surface of farm, gentle slope. Soil, clay loam. All tillable. Fruit, 150 young apple trees, 20 older, plums, cherries and pears. Best adapted to dairying, hay, grain and potatoes. Fences, wire, good. House, large, modern, 9 rooms with modern plumbing, gravity water supply and electric lights. Outbuildings: one barn, 95x33, slate roof with basement stables; barn, 24x45; barn, 18x24; also hen house, creamery and tenant house. House and barn have gravity water supply, fields watered by brooks. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$10,000. Terms, $\frac{1}{2}$ cash. Address Frank H. Knox, agent, 51 State st., Albany, N. Y.

* No. 814 — Farm of 80 acres, located 2 miles from Troy city line, 6 miles from railway station at Troy, on line of N. Y. C. & D. & H. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches of all denominations. Highways good. Surface of farm hilly. Soil, clay loam. Acres in meadow, 50; in natural pasture, 30. Acres tillable, 50. Fruit, apples, pears, plums and cherries. Best adapted to hay and dairying. Fences, fair to good. House, 12 rooms, modern, excellent condition. Outbuildings, nearly new barn, sheds, ice house, etc., all good. Watered, house and barn by well, fields by springs. Occupied by owner and tenant. Reason for selling, ill health of owner. Price, \$6,000. Terms, $\frac{1}{2}$ cash. Address Frank H. Knox, agent, 51 State st., Albany, N. Y.

* No. 815 — Farm of 132 acres, located 2 miles from Mechanicville P. O. and railway station, on line of B. & M. and D. & H. railways; $\frac{1}{4}$ mile from school; 2 miles from Catholic and Protestant churches; 1 mile from milk station. Highways, good. Surface of farm, 100 acres level, balance rolling. Soil, loam. Acres in meadow, 75; in

natural pasture and timber, 25, second growth. Acres tillable, 100. Fruit, apples, pears, plums and cherries. Best adapted to rye, oats, corn, potatoes, hay and dairying. Fences, wire and board, good condition. House, large, 13 rooms, fine condition. Outbuildings: barn, 80x30; barn, 60x28; barn, 50x30; shed, 32x18; tool house, corn house, hog house, 22x35, wood house and tenant house, good condition. Watered by running water. This farm is near Hudson and Hoosick rivers. Reason for selling, to close an estate. Price, \$7,500. Terms, \$4,000 cash. Address Frank M. Knox, agent, 51 State st., Albany, N. Y.

No. 816 — Farm of 134 acres, located $1\frac{1}{2}$ miles from Valley Falls P. O. and railway station, on line of B. & M. R. R.; $\frac{3}{4}$ mile from school; $1\frac{1}{2}$ miles from churches. Highways in good condition. Surface of farm, slopes to south just enough for drainage. Soil, loam, hard pan sub-soil. All tillable. Fruit, apples, plums, pears, cherries and prunes. Best adapted to general farming or dairying. House, 10 rooms, first-class condition, bath. Outbuildings, barn, 34x94, first class condition, tenant house, horse barn, wagon house, hog house, ice house, hen house, corn house and creamery. Water in house. Reason for selling, owner wishes to retire from business. Price, \$70 per acre. Terms, \$3,000 down. Address Schuyler Hayner, Valley Falls, N. Y.

TOWN OF SCHODACK

Population 4,780

No. 817 — Farm of 265 acres; 4 miles from Castleton P. O.; 1 mile from railway station at Van Hoesen, on line of B. & A. R. R.; 1 mile from school. Nearest large village, Castleton, population 2,500, 10 miles from Albany, 18 miles from Troy. Highways, good, $\frac{1}{4}$ mile from State road. Surface, rolling. Soil, gravelly and sandy loam. Fruit of all kinds, 100 apple trees. Best adapted to grain, hay, potatoes, corn, etc. Fences, 75 acres fenced, in good condition. Houses: one of 3 rooms, in fair condition; another of 17 rooms, in excellent condition; and another of 9 rooms, in good condition, newly painted. Outbuildings, barn 120x40, with 28-foot posts, new roof; one 30x40, with 18-foot posts; and another 24x40, new roof; all other necessary outbuildings, in good

* Indicates farm is in hands of agent or real estate dealer.

condition. Watered by 2 cisterns, 5 wells, windmill and stream. This property is 4 miles from Hudson river. There are 20 to 30 acres of moulding sand on this farm that can be sold if desired. Occupied by owner and tenant. Reason for selling, owner has other business. Price, \$65 per acre. Address Edson W. Masten, Castleton, N. Y.

No. 818—Farm of 105 acres, located $\frac{1}{2}$ mile from Brookview P. O., $\frac{1}{16}$ mile from railway station at Brookview, on line of Boston & Albany; $\frac{1}{4}$ mile from school; $\frac{1}{8}$ mile from Protestant church; $\frac{1}{16}$ mile from milk station. Highways good. Nearest city, Albany, 9 miles distant, population about 100,000, reached by rail and highway. Surface of farm, chiefly hilly, some level. Soil, mostly gravel loam. Acres in meadow, 20; in natural pasture, 30; in timber, 5, hard and soft. Acres tillable, 50. Fruit, 150 apple trees, 14 pear trees, 7 peach trees and 12 cherry trees. Best adapted to hay and grain. Fences, barbed wire, fair condition. House, old but in good condition, 13 rooms, arranged for two families. Outbuildings, two barns, one in good condition and one with poor roof; hog house, poor condition; good corn crib; good woodshed. Watered, house by well and cistern, barn by well, fields by creek. Occupied by tenant. Reason for selling, ill health in family. Price, \$8,000. Terms, \$2,500 down, balance on yearly payments of \$300 at 5%. Address Miss Mary L. Sutliff, New York Public Library School, 476 Fifth ave., New York City. Owner will rent.

* No. 819—Farm of 180 acres, located 1 mile from East Schodack P. O., on line of Albany & Southern R. R.; $\frac{1}{4}$ mile from school, 1 mile from Methodist church. Highways in excellent condition. Nearest city, Albany, 8 miles distant, reached by rail and highway. Surface of farm, level and rolling. Soil, clay, gravel and black loam. Acres in timber, 30, pine, oak and chestnut. Acres tillable, 135. Fruit, 10 acres of apples. Best adapted to fruit, dairying, hay and grain. Fences, mostly wire, good. House, 12 rooms, all modern conveniences. Outbuildings, woodshed, ice house, good barn, tenant house of 6 large rooms and other outbuildings, all

in good condition. Watered, house by running water, barns by wells, fields by springs. Occupied by owner. Reason for selling, owner unable to care for farm. Price, \$11,000. Terms, one-half cash. Address Frank M. Knox, agent, 51 State st., Albany, N. Y.

* No. 820—Farm of 156 acres, located 1 mile from North Chatham P. O. and railway station, on line of Albany & Southern R. R.; $\frac{1}{2}$ mile from school; 1 mile from Protestant church. Highways good. Nearest city, Albany, 10 miles distant, reached by rail and highway. Surface of farm rolling. Altitude, 600 feet. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 25; in timber, 10. Acres tillable, 125. Fruit, 75 trees, mostly apples. Best adapted to corn, rye, oats, potatoes, hay, fruit, etc. Fences in fair condition. House, 12 rooms, colonial style, good condition. Outbuildings, several barns and numerous other outbuildings. Watered by well, cistern and spring. Reason for selling, ill health. Price, \$4,500. Terms easy. Address Rural Life Co., Kinderhook, N. Y.

No. 821—Farm of 243 acres; located on line of B. & A. R. R.; $1\frac{1}{2}$ miles from Van Hoesen Station, R. D. 1 from Castleton; 10 miles from Albany. Highways good. Soil, deep, fertile, sandy and gravelly loam. Nearly all tillable; about 10 acres of timber. Fruit, 100 apple trees, also pears and grapes. Surface just rolling enough for natural drainage. Soil adapted to general farming, especially grain, potatoes and grass. Fences, wire, board and rail, good condition. There are two sets of buildings on this farm. The first designated as the Home Farm, has house, 22x24, 2 stories, with wing. Wood house, smoke house and other outbuildings, all in first-class condition. Outbuildings, barn, 40x60, recently built, 28 ft. posts; shed, 20x60, 18 ft. posts; wagon house, 25x60, 18 ft. posts, in first-class condition. No. 2 set of buildings has $1\frac{1}{2}$ story house with complete set of outbuildings, all in good condition. Watered by neverfailing springs, brooks, 3 wells and 2 cisterns. This farm has been in possession of family for a century. It is in first-class condition. The second set of buildings is rented yearly constituting a

* Indicates farm is in hands of agent or real estate dealer.

permanent income for the owner. Fifty acres of farm now being laid out to building lots. Fine bed of moulding sand on farm. Reason for selling, owner a widow and cannot attend to place. For price and terms address Mrs. W. H. Van Vliet, 124 Jay st., Albany, N. Y.

No. 822 — Farm of 10 acres; located 2 miles from P. O., and 2 miles from railway station at Van Hoesen, on line of B. & A. R. R.; $\frac{1}{2}$ mile from school; 3 miles from Protestant church. Highways, State road. Nearest city, Albany, 10 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 500 feet. Soil, gravelly. Fruit enough for home use, 1 acre of raspberries. Best adapted to fruit. Fences, wire, good. House, 5 rooms, good condition. Outbuildings, barn and other outbuildings, nearly new. Watered by well. Occupied by owner. Reason for selling, owner operating a large farm. Price, \$2,000. Terms, easy. Address Rural Life Co., Kinderhook, N. Y.

No. 823 — Farm of 110 acres; located $\frac{1}{4}$ mile from East Schodack P. O. and railway station, on line of Albany & Southern R. R.; $\frac{1}{4}$ mile from school and Lutheran church; $2\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Albany, 9 miles distant, reached by rail. Surface of farm, rolling. Good soil. Acres in timber, 10. Acres tillable, 100. Fruit, 75 trees, nearly all apple. Best adapted to rye, corn, oats and potatoes. Fences, wire, good condition. House, 2 stories, main part, 40x24, wing, 18x16, good condition. Outbuildings, barn, 40x50, machine, wagon and corn house combined, 50x30, good condition. Watered by well. Occupied by one of owners. Reason for selling, to close an estate. Price, \$10,000. Terms cash. Address Mrs. Peter A. Miller, East Schodack, N. Y.

No. 824 — Farm of 135 acres; located 2 miles from Nassau P. O., R. D. No. 1; $\frac{3}{4}$ mile from railway station at Sweets Crossing, on line of Albany & Southern R. R.; $1\frac{1}{2}$ miles from school, Catholic and Protestant churches; 3 miles from butter factory and milk station. Highways, good. This farm is 11 miles from Albany, reached by rail and highway. Surface of farm, rolling. Soil, limestone. Acres in natural pasture, 10;

in timber, 8, hardwood. Acres tillable, 120. Fruit, about 200 trees. Adapted to any crop grown in this climate. Fences, wire and stone wall. House, colonial style, $1\frac{1}{2}$ stories, good condition. Outbuildings, horse barn, 49x27; hog house, 24x15; hen house, 11x29; hay barn, 21x30; cow barn, 42x20; main barn, 50x45. Watered by well, cistern and brooks. Occupied by tenant. Reason for selling, ill health. Price, \$7,500. Terms, reasonable. Address Mrs. Amy B. Husted, Nassau, N. Y.

TOWN OF STEPHENTOWN

Population 1,289

* No. 825 — Farm of 300 acres; 1 mile from North Stephentown P. O.; $1\frac{1}{4}$ miles from railway station at North Stephentown, on Rutland Division of N. Y. C. R. R.; $\frac{3}{4}$ mile from school; 3 miles from church and milk station. Highways, good. Nearest city, Pittsfield, Mass., population about 25,000, 12 miles distant, reached by rail and highway. Surface of farm, smooth and rolling. Altitude, 1,500 feet. Soil, gravelly loam, good. Acres in meadow, 90; in natural pasture, 60; in timber 150, hardwood; acres tillable, 125. Fruit, 40 apple trees in good bearing, 15 pear trees in good bearing. Adapted to any crop grown in this climate. Fences, wire, good condition. House, old-fashioned, 6 rooms. Barn, 40x60, with basement, nearly new. Watered by spring and brook. Taconic Mountains are $\frac{1}{2}$ mile from farm. Occupied by owner. Reason for selling, owner has three other large farms. Price, \$3,500. Terms, \$1,500 cash, balance on mortgage. There is a timber tract adjoining, 650 acres; price, \$2,500; would make good game preserve. Address A. O. Mattison, agent, South Berlin, N. Y.

No. 826 — Farm of 200 acres; located 1 mile from Stephentown P. O.; 2 miles from railway station, on line of Rutland Railroad. Acres in meadow, 75; in natural pasture, 50; in timber, 75. Acres tillable, 120. Fruit, 150 trees. Occupied by owner. Fences in fair condition. House and barn in good repair. Watered by well. Price, \$2,200. Address Mrs. Mary Robinson, North Stephentown, N. Y.

* No. 827 — Farm of 81 acres; located $\frac{1}{4}$ mile from North Stephentown P. O.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 146.—BUILDINGS ON FARM No. 824, TOWN OF SCHODACK, RENSSELAER COUNTY.

and railway station, on line of Rutland Division of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from Protestant church and creamery; $\frac{1}{4}$ mile from milk station. Highways, good. Nearest city, Pittsfield, 12 miles distant, population about 30,000, reached by rail and highway. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 40; in natural pasture, 25; in timber, 10, principally hemlock. Acres tillable, 60. Fruit, 50 apple trees, also pears, cherries and plums. Best adapted to corn, oats, hay, buckwheat, potatoes, berries and fruit. Fences, wire, good. House, 8 rooms, good condition, slate roof. Outbuildings, barn, 28x40; barn, 20x30; horse barn, carriage house, etc. Watered, house by well, barn and fields by brook. Occupied by owner. Reason for selling, owner has other business. Price, \$3,000. Terms, \$1,500 cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 828—Farm of 200 acres; located 1 mile from North Stephtown P. O.; $1\frac{1}{4}$ miles from railway station, on line of Rutland Division of N. Y. C. R. R.; $\frac{3}{4}$ mile from school; 2 miles from Catholic church, Protestant churches, butter factory and milk station. Highways, somewhat hilly but good. Nearest city, Pittsfield, 12 miles distant, population about 30,000, reached by rail and highway. Surface of farm, rolling. Altitude, about 1,500 feet. Soil, loam. Acres in meadow, 60; in natural pasture, 75; in timber, 65, maple, beech, birch, first and second growth. Acres tillable, 80. Fruit, 200 apple trees, also pears, plums and cherries. Best adapted to hay, oats, corn, potatoes, buckwheat and berries. Fences, wire and board, good condition. House, 10 rooms, good condition. Outbuildings, 3 barns, wagon house, granary, all good size and in good condition. Watered, house by well, barns by brook, fields by brook and springs. Occupied by owner. Reason for selling, owner a widow. Price, \$2,200. Terms, \$500 cash, balance on mortgage at 5%, easy payments. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 829—Farm of 140 acres; located $3\frac{1}{2}$ miles from South Berlin P. O.; $3\frac{1}{4}$ miles from railway station at South Berlin, on line of Rutland Division of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $3\frac{1}{2}$ miles from creamery and church; $3\frac{1}{4}$ miles from milk station. Highways, somewhat hilly but good. Nearest city, Pittsfield, Mass., 17 miles distant, population 30,000, reached by rail and highway. Surface of farm, rough. Altitude, 1,700 feet. Soil, limestone. Acres in meadow, 35; in natural pasture, 20; in timber, 85, maple, beech, birch and spruce. Acres tillable, 40. Fruit, 40 apple trees, also a few plums. Best adapted to hay, oats, buckwheat, potatoes and berries. Fences, wire, fair condition. House, 8 rooms. Outbuildings, barn, 26x36; shed, 24x16. Watered, house by spring, barn and fields by stream. Occupied by owner. Reason for selling, advanced age and poor health of owner. Price, \$1,100. Terms, \$500 cash, balance on mortgage at 5%. There are 70 acres adjoining this farm with a barn and a few acres of cleared land that the owner will sell for \$300. Address A. O. Mattison, agent, South Berlin, N. Y.

* No. 830—Farm of 135 acres; located $1\frac{1}{2}$ miles from Stephtown P. O. and railway station, on line of Rutland Division of N. Y. C. R. R.; $1\frac{1}{2}$ miles from school, milk station, Catholic and Protestant churches. Highways, good. Nearest city, Pittsfield, 12 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,000 feet. Soil, sandy loam. Acres in meadow, 60; in natural pasture, 40; in timber, 35, oak, chestnut and maple. Acres tillable, 100. Fruit, apples and pears, about 80 trees. Best adapted to hay, grain, potatoes and berries. Fences, wire and rail, fair condition. House, large and in fair condition. Outbuildings, 4 barns, good condition. Watered by spring and brook. Occupied by owner. Reason for selling, owner has another farm. Price, \$4,000. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address A. O. Mattison, agent, South Berlin, N. Y.

ROCKLAND COUNTY

Area, 200 square miles. Population, 46,875. Annual precipitation, 51.73 inches. Annual mean temperature, 48°. Number of farms, 1,133. County seat, New City. This county is located in the southeastern part of the state bordering on New

* Indicates farm is in hands of agent or real estate dealer.

Jersey. The Hudson river forms its boundary on the east and it is drained by the Ramapo and Hackensack Rivers.

The surface is mostly hilly or mountainous. In the western part are found the Ramapo Mountains, which are steep, rocky and barren. The southern part of the county and the level valley of the Hackensack River lying back of the Highlands of the Hudson contain a very fertile soil of sandy loam and in this locality dairying, poultry raising and vegetable and small fruit growing are conducted with great profit. Extensive deposits of clay and sand are found along the shores of the Hudson and brick-making is a leading industry. The crops reported are as follows: Corn, 81,576 bushels; oats, 17,680 bushels; rye, 13,826 bushels; potatoes, 66,909 bushels; hay and forage, 11,224 tons. The value of all farm property is \$11,194,649, an increase of 98.9 per cent. over the value of 1900. This increase of \$58.70 per acre represents the largest per cent. of gain in farm property of any county in the state, except Westchester. The average value of improved land in the county is \$185 per acre. Domestic animals on 958 farms are as follows: Dairy cows, 2,268; horses, 2,040; swine, 1,200; sheep, 421; poultry, 71,792; product of milk, 1,140,804 gallons, which sold for \$148,179. There are no milk stations or factories in the county, the milk being shipped direct to New York City, which is only 32 miles from the county seat. Much trap rock is quarried in this region, where it is crushed for use in road making or mixed with cement for concrete structures. There are 47 district schools in the county. The agricultural organizations consist of one grange, one county agricultural association and a county industrial association.

TOWN OF STONY POINT

Population 3,651

No. 831 — Farm of about 4 acres; located 1 mile from P. O. at Stony Point; 3 miles from Thiells, on line of Erie R. R.; about 5 minutes' walk from school; 1 mile from churches. Nearest large village, Haverstraw, 7 miles distant,

reached by highway. Good soil. Fruit, pears, apples and grapes. Fences in fair condition. House, 22x25, 2 stories, good condition. Outbuildings, large barn, good condition. Watered by well. Occupied by owner. Price, \$2,800. Terms, cash. Address Aaron Baisley, Stony Point, N. Y.

ST. LAWRENCE COUNTY

Area, 2,926 square miles. Population, 89,005. Annual precipitation, 34.85 inches. Annual mean temperature, 49.3°. Number of farms, 8,224. County seat, Canton.

This county is located in the northern part of the state bounded on the northwest by the St. Lawrence River, which separates it from Canada. The land area in this county is the largest in the state. It is intersected by Indian, Grass, Oswegatchie, Raquette and St. Regis Rivers.

The surface is mostly hilly except a strip about eighteen miles wide which extends along the St. Lawrence River, the soil of which is rich clay loam. In the southeast section are the foothills of the Adirondacks, which consists of a series of hills and deep valleys. In these valleys we find a dark slaty and gravelly loam. The hills extend in broad ridges, the soil of which is a fertile clay loam. About 700,000 acres in the county are covered with forests of pine, sugar maple, oak, birch, elm, beech, and other trees. Among the minerals are granite, iron ore, lead, limestone and Potsdam sandstone. Among the crops produced in this county are corn, 315,811 bushels; oats, 1,792,670 bushels; potatoes, 1,184,162 bushels; barley, 75,975 bushels; buckwheat, 63,916 bushels; hay and forage, 412,612 tons. The value of all farm property, improvements, tools and live stock is \$49,975,175. This represents an increase of 39.6 per cent. over the valuation shown in 1900. The average value of improved land per acre is \$36.39. The number of domestic animals are dairy cows, 100,537; horses, 22,665; swine, 33,935; sheep, 18,513; poultry, 315,991. The county leads in the production of milk, hay and forage; the production of the former being 47,654,538 gallons, the value of which with the products of 158 milk stations and factories was \$4,435,441. Lumber is one of the chief exports as is also maple sugar. The county is intersected by the Central Vermont, R., W. & O. and Grand Trunk railroads. At Canton is located the St. Lawrence University (Universalist). A state normal school is located at Potsdam. Massena Springs is a well-known watering place. The large towns and the numerous smaller villages

with many manufacturing towns in New England and New York City furnish unlimited markets for all the products. There are 375 district schools in the county, 69 miles of state and county roads, 3,149 miles of other improved highways, and 46 agricultural organizations conserve the agricultural interest of the county.

TOWN OF CANTON

Population 6,151

No. 832 — Farm of 140 acres; $\frac{3}{4}$ mile from Eddy P. O.; 4 trains on N. Y. C. stop daily within 40 rods of house. Highways, good; State road. Clay loam soil. Acres in meadow, 70; natural pasture, 7; timber, 20, maple and beech; acres tillable, 120. Fruit, apples, also currants and berries. Occupied by tenant. Fences, woven wire and rail, good condition. House, 19x30, good cellar, good condition. Large barn, 126 feet long, with stable underneath, cement floor; granary, and new milk house with cement floor, in good condition. Watered by well and brook. This farm will keep 30 cows and team of horses and have hay to sell. For price and terms, address C. T. Humphrey, Canton, N. Y., R. F. D.

TOWN OF CLARE

Population 420

No. 833 — Farm of 25 acres; located 2 miles from Degrasse P. O.; 20 miles from railway station at Canton, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; 2 miles from church and cheese factory. Highways, good. Surface of farm, rolling. Soil, sandy loam. Acres in meadow, 10; in natural pasture, 15. Acres tillable, 10. Best adapted to potatoes, corn, oats and vegetables. Fences, wire, good condition. House, 18x24. Barn, 20x30. Watered by spring. Branch of La Grasse river borders on back of farm. Occupied by owner. Reason for selling, poor health. Price, \$850. Terms, cash. Address D. N. Dean, Degrasse, N. Y. Owner will rent.

TOWN OF DEPEYSTER

Population 907

* No. 834 — Farm of 178 acres; 8 miles from railway station at Heuvelton, on line of N. Y. C. & H. R. R. R.; $\frac{1}{2}$ mile from school; 4 miles from churches; $1\frac{1}{4}$ miles from butter factory and cheese factory. Highways, good. Nearest city, Ogdensburg, population 16,000, 20 miles distant, reached by highway. Surface of farm, level. Soil, clay. Acres in meadow, 100; in natural pasture, 10; in timber, 10; all tillable except wood-

land. A few apple trees. Best adapted to timothy, clover, oats and grain. Fences, good. House, 8 rooms, nearly new. Barns: cow barn, 50x60, just remodeled, basement 32x60, cement floor; horse barn, 25x40, with large leanto. Watered, house and barn by well, fields by springs. Two miles from Black Lake. Owner will leave hay, straw and fodder; will sell 30 cows separately. Occupied by tenant. Reason for selling, owner wishes to retire. Price, \$10,000. Terms, \$3,000 cash, balance at 5%. Address J. H. McLearn, Gouverneur, N. Y.

TOWN OF FOWLER

Population 1,655

* No. 835 — Farm of 81 acres; located 3 miles from Gouverneur P. O.; 1 mile from railway station at Hailesboro, on line of N. Y. C. R. R.; 1 mile from cheese and butter factory. Highways, good. Surface of farm, part rolling, part rough. Soil, clay. Acres tillable, about 40. Fruit, a few apples. Best adapted to corn, oats, wheat and potatoes. Fences, fair condition. House, large, good condition. Outbuildings in good condition. Watered by well. Occupied by owner. Reason for selling, owner desires larger farm. Price, \$6,000, including 10 cows and farming tools. Address J. H. McLearn, agent, Gouverneur, N. Y.

* No. 836 — Farm of 108 acres; 2 miles from Hailesboro P. O. and railway station, on line of N. Y. C. R. R.; 2 miles from school; 4 miles from churches; 2 miles from cheese factory; 4 miles from milk station and condensing plant. Highways, good. Nearest large village, Gouverneur, population 5,000, 4 miles distant, reached by rail or highway. Surface, rolling. Soil, clay loam. Acres in meadow, 50; in natural pasture, 58; acres tillable, 100. Best adapted to general farming, hay, corn, small grain, etc. Ten-room house, good cellar, all in good condition. Barns, fairly good condition. House watered by wells; barn and fields, by springs. Occupied by owner. Purchasing price includes dairy.

* Indicates farm is in hands of agent or real estate dealer.

Reason for selling, owner desires larger farm. Price, \$7,000. Address J. H. McLearn, agent, Gouverneur, N. Y.

* No. 837 — Farm of 237 acres; located 8 miles from Gouverneur P. O.; 4 miles from railway station at York, on line of N. Y. C. R. R. Highways, good. Surface of farm, part rolling, part rough. Soil, clay. Acres tillable, about 100. Fruit, a few apples. Best adapted to corn, oats, wheat and potatoes. Fences in food condition. House, large, good condition. Outbuildings, large barns, good condition. Watered by springs. Occupied by tenant. Reason for selling, owner desires to retire from business. Price, \$12,000, including 30 cows, bull, hay, straw and corn fodder. Address J. H. McLearn, agent, Gouverneur, N. Y.

TOWN OF GOUVERNEUR

Population 6,020

* No. 838 — Farm of 169 acres; 1½ miles from Gouverneur P. O. and railway station, on line of N. Y. C. R. R.; 1½ miles from school, churches, cheese factory, milk station and condensing plant. Highways, excellent. Nearest village, Gouverneur, population 5,000, 1½ miles distant, reached by highway. Surface, rolling. Soil, clay loam. Acres in meadow, 169. Acres tillable, 169. Best adapted to general farming, hay, clover, corn, small grain, etc. Fences in good condition. House, in good condition. Barns, in good condition. House and barns watered by wells; fields, by springs. Purchasing price includes dairy. Occupied by owner. Reason for selling, owner cannot work so much land. Price, \$12,000. Address J. H. McLearn, agent, Gouverneur, N. Y.

* No. 839 — Farm of 100 acres; 1 mile from Gouverneur P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school and churches, cheese factory, milk station and condensing plant. Highways, excellent. Nearest village, Gouverneur, population 5,000, 1 mile distant, reached by highway. Surface, rolling. Soil, clay loam. Acres in meadow, 100; acres tillable, 100. Best adapted to general farming, hay, corn, small grains, etc. Fences, in good condition. House, in good condition.

Barns, in poor condition. House watered by wells; fields, by 2 springs. Creek through farm. Purchasing price includes dairy. Occupied by owner. Reason for selling, ill health of owner. Price, \$8,000. Address J. H. McLearn, agent, Gouverneur, N. Y.

* No. 840 — Farm of 93 acres; ½ mile from Gouverneur P. O., R. D. 4; ¾ mile from railway station at Gouverneur on line of N. Y. C. R. R.; ¾ mile from school and churches; ½ mile from butter and cheese factory and milk station. Highways, excellent. Nearest large village, Gouverneur, population 5,000, ½ mile distant, reached by highway. Surface, level. Acres in meadow, 60; in natural pasture, 33; acres tillable, 60. Best adapted to general farming, hay, oats, etc. Fences, mostly wire, in good condition. House, 24x36, in good condition. Barn, about 36x60, fair condition. Watered, house and barns, by wells; fields, by springs. Occupied by tenant. Excellent location, near best town in northern New York. Good markets. Reason for selling, to realize money for business enterprise. Price, \$8,000. Terms, \$1,500 to \$2,000 cash, balance on easy terms. Address J. H. McLearn, agent, Gouverneur, N. Y.

* No. 841 — Farm of 336 acres; 6 miles from Gouverneur P. O.; 6 miles from railway station at Gouverneur, on line of N. Y. C. & H. R. R. R.; milk taken to milk station from door. Highways, State road. Nearest village, Gouverneur, population 5,000, 6 miles distant, reached by highway. Surface of farm, hilly and rolling. Soil, clay loam. Acres in meadow, 175; in timber, 161; acres tillable, 175. A few apple trees. Best adapted to timothy, clover, oats and grain. Fences, in good condition. Large house in good repair; also a 6-room tenant house. Cow barn, 40x65; horse barn, 30x40, 3 stories high; milk house, hog pen; all in good repair. Watered, house and barns, by well; fields, by springs and river. Will leave 30 cows, hay, straw, fodder and some farming tools. Near Oswegatchie river. Occupied by tenant. Price, \$12,000. Terms, \$2,500 cash, balance, easy, 5%. Address J. H. McLearn, agent, Gouverneur, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF MACOMB

Population 1,168

* No. 842 — Farm of 160 acres; $\frac{3}{4}$ mile from Brasie Corners P. O.; 7 miles from railway station at Gouverneur, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school and churches; $\frac{1}{2}$ mile from cheese factory. Highways, good. Nearest village, Gouverneur, population 5,000, 7 miles distant, reached by highway. Surface, rolling. Soil, clay loam. Acres tillable, 160. Best adapted to general farming, hay, corn, small grains, etc. Fences, good. Good house, furnace and cistern in cellar. Horse barn, 28x32; cow barn, 45x50, with basement stable, in good repair. House watered by well; fields, by springs. Occupied by tenant. Purchasing price includes dairy. Reason for selling, to realize money for business enterprise. Price, \$8,500. Will trade for other property. Address J. H. McLear, agent, Gouverneur, N. Y.

TOWN OF MADRID

Population 1,457

No. 843 — Farm of 164 acres; located about 1 mile from Madrid P. O., R. D. 2, 1 mile from railway station at Madrid Springs, on line of Rutland R. R.; 1 mile from school, churches, butter factory and milk station; 7 miles from cheese factory; 10 miles from milk condensing plant. Highways, good. Nearest city, Ogdensburg, 17 miles distant, reached by rail and highway. Surface of farm, level and slightly sloping. Altitude, about 300 feet. Soil, loam. Acres in timber 32, 7 acres of which are fine maple-sugar bush, remainder elm, pine, ash, cedar, spruce, oak, basswood, beech and birch, first and second growth. Acres tillable, 124. Fruit, 50 apple trees. Best adapted to dairying, hay, corn, barley, wheat, buckwheat, potatoes, etc. Fences, stone and rail, good condition. House, $1\frac{1}{2}$ stories, 11 rooms and large wood shed attached, good condition. Outbuildings, barn, $45\frac{1}{2}$ x100, built in 1898, shed attached, one old barn, granary, hog and hen house, store house with smaller wood shed attached and sugar house. Watered, house, by well and cistern; barn, by well; fields, by springs. Occupied by tenant. Reason for selling, owner a teacher and cannot attend to farm. Price, \$55 per acre.

Terms, $\frac{1}{2}$ cash, balance on mortgage at 5%. Address Miss Edith M. Hall, Madrid, N. Y.

TOWN OF OSWEGATCHIE

Population 2,235

* No. 844 — Farm of 80 acres; located 8 miles from Ogdensburg P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $\frac{3}{4}$ mile from Presbyterian church and cheese factory; 4 miles from milk station. Highways, mostly stone, $2\frac{1}{4}$ miles to State road. Nearest city, Ogdensburg, 8 miles distant, reached by highway. Soil, clay loam. Acres in meadow, 30. Acres tillable, 80. Fruit, small orchard for family use. Best adapted to hay, corn and oats. Fences, rail and wire. Large house, first-class condition. Outbuildings, 3 barns, silo, hen house and hog pen, all in good condition. Watered by well. Occupied by owner. Reason for selling, owner a widow. Price, \$8,000. Terms, \$3,500 down, balance on mortgage at 5% interest. Address Russell Real Estate Co., 73 State street, Ogdensburg, N. Y.

* No. 845 — Farm of 110 acres; located 5 miles from Heuvelton P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from churches and butter factory. Highways, good. Surface of farm, mostly level. Soil, clay and sandy loam. Acres tillable, 95. Fruit, enough for family use. Best adapted to hay, corn, oats and potatoes. Fences, rail and wire. House, stone, good condition. Outbuildings, old style, fair condition. Watered by well and river. Oswegatchie river and Black lake border on farm. Occupied by owner. Reason for selling, owner unable to work farm. Price, \$6,000. Terms, \$2,500 down, balance on mortgage at 5%. Address Russell Real Estate Co., 73 State street, Ogdensburg, N. Y.

TOWN OF PARISHVILLE

Population 1,785

No. 846 — Farm of 498 acres; 5 miles from Potsdam, R. D. Good, rich soil. Sixty acres of timber. A fine farm in good location. Large stone house, in good repair. Main barn, 165 feet long; several other barns and outbuildings, all

* Indicates farm is in hands of agent or real estate dealer.

good; 5 milking machines and gas engine. Watered by springs. Well fenced. Price, \$21,000, including about 100 head of cattle. Address P. J. Clark, Parishville, N. Y.

No. 847 — Farm of 180 acres; located $2\frac{1}{2}$ miles from Parishville P. O., R. D. 1; 11 miles from railway station at Potsdam, on line of N. Y. C. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from churches; 3 miles from butter factory, cream taken at door; 11 miles from milk station. Highways, somewhat hilly but good. Surface of farm, part level and part rolling. Altitude 780 feet. Soil, light and heavy loam. Acres in meadow, 50; in natural pasture, 120; in timber, 40, hemlock, spruce, pine, cedar and 400 maple trees. Acres tillable, 100. Fruit, 35 apple trees, also strawberries. Adapted to any crops grown in northern New York. Fences good. House, $25 \times 38\frac{1}{2}$, kitchen and wood house, 20×36 ; store, 15×24 ; fair condition. Outbuildings, silo; barn, 46×81 ; barn, 30×40 ; barn, 20×30 ; barn, 24×36 , fair condition. Watered, house and

barns, by spring; fields, by trout brook. Occupied by owner. Reason for selling, owner has other business. Price, \$25 per acre. Terms, $\frac{1}{2}$ cash, balance on time. Address O. H. Capell & Son, Parishville, N. Y., R. D. 1.

TOWN OF RUSSELL

Population 1,842

* No. 848 — Farm of 200 acres; 3 miles from Hermon P. O.; 3 miles from railway station at Hermon, on line of N. Y. C. R. R. Highways, good. Nearest large village, Hermon, population 600, 3 miles distant, reached by rail and highway. Surface, rolling. Soil, clay loam. Acres in meadow, 100; in timber, 15, maple; acres tillable, 150. Best adapted to timothy, clover, corn, small grain, etc. Fences, in good condition. House of 8 rooms, in good condition. Barns, in fair condition. Watered by well. Occupied by tenant. Reason for selling, owner wishes to realize money for business enterprise. Price, \$8,000. Address J. H. McLearn, agent, Gouverneur, N. Y.

SARATOGA COUNTY

Area, 800 square miles. Population, 61,917. Annual precipitation, 35.41 inches. Annual mean temperature, 47° . Number of farms, 3,611. County seat, Ballston Spa.

This county is located in the eastern part of the state, bounded on the east by the Hudson River and on the south by the Mohawk River, and is intersected by the Sacandaga River in the northwestern portion. The northern part of the county is tillable in the Sacandaga Valley and along the Hudson River. Toward the center of the county the surface becomes less rugged and is adapted to pasturage and dairying, the soil being a sandy and gravelly loam. To the southwest most of the soil is slate and clay loam and to the southeast clay loam predominates. In the latter section there are quite a number of sand spots which are not fertile.

The surface is extensively covered with forests of ash, beech, elm, chestnut, hickory, oak and sugar maple. The county contains several lakes, Saratoga Lake and Jenny Lake being the largest. Some of the leading crops are corn, 482,561 bushels; oats, 435,812 bushels; buckwheat, 130,163 bushels; rye, 103,261 bushels; potatoes, 579,652 bushels; hay and forage, 75,421 tons. The value of all farm property is \$15,960,106. The average value of farm lands per acre is \$15.47 and of improved land, \$32.03; a slight gain over the values of 1900. The domestic animals number dairy cows, 16,224; horses, 8,115; swine, 10,612; sheep, 11,483; poultry, 178,318; production of milk was 7,203,456 gallons which with its products sold for \$726,945.

The county is intersected by the Champlain Canal, the D. & H. R. R. and the Fitchburg and Mt. McGregor railroads. The southeastern part of the county is traversed by electric lines from Saratoga to Schenectady, Albany, Troy, Mechanicville and Fort Edward. Most of the products of the county are demanded by the local markets of Saratoga Springs, Ballston Spa, etc. Saratoga Springs is one of the most fashionable summer resorts in the world. Here are more than twenty mineral springs, some of which are of great celebrity and are of recognized medicinal value. These springs are now owned by the state, being one of the results accomplished in the movement for the conservation of the natural resources of the

* Indicates farm is in hands of agent or real estate dealer.

state now being rapidly developed. The county contains 195 district schools, 74 miles of state and county roads, 1,011 miles of improved highways; and 18 agricultural organizations are aiding the individual farmers throughout the county.

TOWN OF CHARLTON

Population 1,030

* No. 849—Farm of 108 acres; 5 miles from Ballston Spa P. O. and railway station, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; 5 miles from churches, butter factory and milk station. Highways, good. Surface of farm, half rolling and half level. Soil, black, good. Acres in meadow, 30; in natural pasture, 10; in timber, 8, hard wood and chestnut; acres tillable, 90. Fruit, old apple orchard, also 100 apple trees 5 years old, $\frac{1}{4}$ acre of strawberries. Best adapted to hay, fruit, grain and dairying. Fences, wire, good. House, 15 rooms, bath, toilet, fine condition. Outbuildings, large barn in fine condition; also two smaller barns in good condition. Water pumped by gasoline engine. Occupied by tenant. Reason for selling, owner has other business. Price, \$5,000. Will include considerable equipment for all cash sale. Terms, easy. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

TOWN OF CORINTH

Population 3,102

No. 850—Farm of 80 acres; 1 mile from Palmer P. O.; 3 miles from Corinth railway station, on line of D. & H. R. R.; $\frac{1}{8}$ mile from school; 2 miles from churches. Saratoga Springs, population about 14,000, and Glens Falls, population about 15,000, 12 and 11 miles distant, reached by rail and highway. One mile from State road. Surface of farm, rolling and level. Altitude, about 650 feet. Soil, sandy loam and clay. Acres in meadow, 30; in natural pasture, 35; in timber, 15, pine, hemlock, hard wood; acres tillable, about 50. Fruit, 40 apple trees, cherries, strawberries and grapes. Young orchard of 50 trees. Sugar maple orchard of about 150 trees. Best adapted to potatoes, corn, gardening, etc. Fences, wire and rail, fair condition. House, 2 stories, good condition, main part, 22x32, kitchen and woodshed, 18x26. Outbuildings, barn, 30x40; barn, 28x30; barn, 28x32; good condition; 2 hen houses; hog pen; sugar house; well house, new silo, and other outbuildings.

Watered, house, by well and cistern; barns, by well and spring; fields, by running water. This farm is on telephone and R. D. line. Good home market. It is $\frac{3}{4}$ mile from Hudson river; 3 miles from Lake Boneta; 5 miles from several other lakes. Occupied by owner. The International pulp and paper mills are located near farm, so there is good market. Telephone in house. Reason for selling, poor health of owner. Price, \$4,000. Terms, \$2,500 cash, remainder on mortgage. Address Mrs. Wm. B. Storey, Corinth, N. Y., R. D. 1.

* No. 851—Farm of 330 acres; located 6 miles from Corinth P. O., R. D. 2; 5 miles from railway station at Corinth, on line of D. & H. R. R.; $1\frac{1}{2}$ miles from school; 1 mile from Methodist church. Highways, somewhat hilly but good. Surface of farm, rolling. Altitude, 1,170 feet. Soil, glacial drift loam. Acres in meadow, 25; in natural pasture, 45; in timber, 260, pine, poplar, spruce and hard wood. Acres tillable, 30. Fruit, old orchard of 40 apple trees, young orchard of apples, plums, cherries, pears and quinces, 900 trees. Best adapted to hay, potatoes and fruit. Fences in good condition. House, 7 rooms, new roof, recently painted inside. Outbuildings, horse barn, 26x30, good condition; cow barn, 30x40, fair condition. Watered by well, springs and lake. Farm borders on Efner lake, good fishing, fine shore line, good camping sites, excellent hunting. Reason for selling, owner has other business. Occupied by owner as summer house. Price, \$3,300. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address Abram M. Hollister, Corinth, N. Y.

No. 852—Farm of 50 acres; located 6 miles from Corinth P. O., R. D. 2 and railway station, on line of D. & H. R. R.; 1 mile from school; $\frac{1}{2}$ mile from Methodist church. Highways, good. Surface of farm, gentle slope to south. Altitude, 1,170 feet. Soil, fertile, has always been dairy farm. Acres in meadow, 20; in natural pasture, 30; in timber, 25, pine. Acres tillable, 20. Fruit, 20 apple trees. Best adapted to

* Indicates farm is in hands of agent or real estate dealer.

fruit, corn, beans, etc. Fences in good condition. House, 8 rooms, fair condition. Outbuildings, horse barn, 26x28, good condition; cow barn, 30x36, good condition. Watered, house and barn, by well; fields, by spring and lake. This farm is on Efner's lake, 50 rods of shore, good camping sites. Occupied by tenant. Price, \$1,200. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address Abram M. Hollister, Corinth, N. Y. Owner will rent on shares or for cash.

No. 853 — Farm of 150 acres; located $\frac{1}{2}$ mile from Palmers Falls P. O.; $1\frac{1}{4}$ miles from railway station at Corinth, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; $\frac{1}{2}$ mile from Catholic and Protestant churches. Highways, in good condition. Farm is about 12 miles from Glens Falls and Saratoga Springs, reached by rail and highway. Surface of farm, rolling. Soil, clay, sand, some clay and sand loam. Acres in meadow, 20; in natural pasture, 40; in timber, 30, hard wood and hemlock. Acres tillable, 75. Fruit, apples and cherries. Best adapted to general farming. Fences in fair condition. Two good sized houses with additions. Outbuildings, 2 barns and other outbuildings. Watered by well, cistern, brook and Hudson river. Farm bounded on north by Hudson river. Occupied by tenant. Reason for selling, to close an estate. Price, \$7,500. Terms, part down, balance on bond and mortgage. Address Jesse Stiles, 7 Washington place, Saratoga Springs, N. Y.

TOWN OF EDINBURG

Population 793

No. 854 — Farm of 120 acres; located $\frac{1}{4}$ mile from Edinburg P. O.; 5 miles from railway station at Northville, on line of F., J. & G. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from Methodist church. Highways, good. Surface of farm, rolling. Altitude, 750 feet. Soil, sand loam. Acres in meadow, 50; in natural pasture, 50; in timber, 20, hemlock, beech and maple. Acres tillable, 50. Fruit, 25 apple trees. Best adapted to corn, potatoes, oats and buckwheat. Fences, wire. House, $1\frac{1}{2}$ stories. Outbuildings, one horse barn, 30x40; hay barn, 26x36. Watered by well and springs. Occupied by owner. Price, \$1,800. Terms, cash. Address Thos. Stanhouse, Edinburg, N. Y.

No. 855 — Farm of 100 acres; located 1 mile from Edinburg P. O.; 6 miles from railway station at Northville, on line of F., J. & G. R. R.; 1 mile from school and Methodist church. Highways, good. Surface of farm, level. Altitude, about 700 feet. Soil, sand loam. Acres in meadow, 60; in natural pasture, 20; in timber, 20, mostly maple. Acres tillable, 80. Best adapted to potatoes, corn and oats. Fences, wire. House, $1\frac{1}{2}$ stories. Barn, 40x50. Watered by running water and springs. Occupied by owner. Price, \$2,500. Terms, cash. Address Margaret Hamilton, Edinburg, N. Y.

TOWN OF GALWAY

Population 1,205

* No. 856 — Farm of 142 acres; located 8 miles from Amsterdam P. O., R. D. 2, and railway station, on line of N. Y. C. R. R.; 2 miles from school and churches. Nearest large village, Hagsman, 4 miles distant, reached by electric railway. Surface of farm, nearly level. Soil, loam. Acres in meadow, 60; in natural pasture, 20; in timber, 10, hard and soft, 4 acres second growth. Acres tillable, 48. Fruit, 40 apple and 3 pear trees. Fences, wire, good. House, $1\frac{1}{2}$ stories, 9 rooms, good condition. Outbuildings, barn, 30x60; barn, 40x60; hen house, and hog house. Watered by creek, spring and well. Occupied by owner. Reason for selling, owner wants to move to city. Price, \$2,700. Terms, part cash, balance on mortgage. Owner will sell stock, tools, etc. Address H. L. Reed, agent, Amsterdam, N. Y.

TOWN OF GREENFIELD

Population 1,552

No. 857 — Farm of 110 acres; $2\frac{1}{2}$ miles from South Corinth P. O., Porter Corners, R. D. 1; 3 miles from station, on line of the Adirondack R. R.; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from Protestant church; 3 miles to creamery. Roads in vicinity, fairly good; 2 miles to State road leading from Saratoga to Corinth. Nearest village, Saratoga Springs, 10 miles distant, reached by rail and highway. Occupied by owner. Surface, about $\frac{1}{2}$ hilly, remainder level. Soil, gravelly loam. Acres in meadow, 35; natural pasture, 50; timber, 25, second growth hemlock, spruce and hard wood; acres tillable, 70. Fruit, about 50 ap-

* Indicates farm is in hands of agent or real estate dealer.

ple trees, several trees of pears, plums and cherries, $\frac{1}{2}$ acre in strawberries and $\frac{1}{4}$ acre in raspberries. Best adapted to corn, potatoes, oats, buckwheat and fruits. Fences, stone, board, rail and wire, in good condition. House, 10 rooms, in first-class condition. Barns, 3 large barns, in first class condition. Watered, house and barns, by living springs piped to buildings; fields, by springs and streams. This farm lies in the foothills of the Adirondack Mountains, Mooleville lake, about 2 miles distant. It is a very pleasant place, suitable for stock raising, especially sheep. A fine market for everything at Saratoga Springs. Reason for selling, death of owner's husband. Price, \$3,000. Terms, \$1,500 cash, mortgage to secure balance. Address Mrs. Frances A. Dickins, Porter Corners, N. Y., R. D. 1.

No. 858—Farm of 100 acres; $1\frac{1}{2}$ miles from Middle Grove P. O., R. D. 2; $1\frac{1}{2}$ miles from railway station at Middle Grove, on line of E. N. Y. R. R.; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from churches and milk station; $3\frac{1}{2}$ miles from butter factory. Highways, somewhat hilly but good. Nearest large village, Saratoga Springs, population 14,000, $8\frac{1}{2}$ miles distant, reached by rail and highway. Surface, rolling and level. Acres in meadow, 30; in natural pasture, 45; in timber, 25, pine, hemlock, chestnut, hard wood. Acres tillable, 75. Fruit, 20 apple trees, 4 plum and 4 cherry trees. Best adapted to corn, oats, buckwheat and vegetables. Fences, stone, rail, fair condition. House, 2 stories, 22x32; 2 wings, 13x18. Outbuildings, barn, 26x47; cow stable, 13x24; wagon house; granary, 18x40; wagon house, 18x24; tool house, 13x20; poultry house; hog house. Watered by well, spring and creek; water also put in house and barn by hydraulic ram. Lake Desolation, a summer resort, is about 2 miles from farm. Reason for selling, poor health of owner. Price, \$3,000. Address Samuel Kilmer, Greenfield Center, N. Y., R. D. 2.

No. 859—Farm of 80 acres; located $\frac{1}{2}$ mile from Porter Corners P. O., R. D. 1; $1\frac{1}{2}$ miles from railway station at Kings, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school and Methodist church; 1 mile from butter factory. Highways in fair condition. Nearest large village, Saratoga, 9 miles distant, reached by

rail and highway. Surface of farm rolling. High altitude. Soil, sandy loam. Acres in meadow, 20; in natural pasture, 30; in timber, 20, second growth. Acres tillable, 30. Fruit, apples. Best adapted to potatoes, buckwheat and oats. Fences, wood and wire. House, 25x40, 9 rooms. Outbuildings, barn, 30x40, stable for 6 cows, 2 horses, also good hen house. Watered by well and stream. Occupied by owner. Reason for selling, ill health. Price, \$1,250. Terms, \$600 down and \$100 every year with interest at 6%. Address Charles Hildebrandt, Schenectady, R. D. 7.

No. 860—Farm of 50 acres; $1\frac{1}{2}$ miles from Middle Grove P. O., R. D. 2, Greenfield Center; $1\frac{1}{2}$ miles from railway station at Middle Grove on line of Eastern New York R. R.; $\frac{1}{2}$ mile from school and churches; 4 miles from butter factory; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Saratoga, population 14,000, 8 miles distant, reached by highway, rail and trolley. Surface, level, some rolling. Soil, clay loam. Acres in meadow, 25; in timber, 2, second growth pine, chestnut; acres tillable, 47. Fruit, 500 apple trees, 10 pear, 6 cherries; also currants, grapes, raspberries and strawberries. Best adapted to corn, oats, rye, buckwheat and potatoes. Fences, woven wire, barbed wire, board and some stone wall. House, 12 rooms, good condition. Large barn with basement, in good condition; carriage house, pig house, 2 hen houses. Watered by well and spring, running water in stable and barn yard. Occupied by owner. Good location; present owner has summer boarders. Reason for selling, old age of owner. Price, \$2,500. Terms, cash, or a reasonable amount down. The owner has 70 acres joining this farm mostly clay, well watered. House, barn, corn crib. Fruit, apples and grapes. Five acres young timber, mostly pine. Buildings in rather poor condition. Price, \$1,500, or will sell the farm above advertised together with this farm for \$3,500. Address Mrs. J. H. Stedman, Greenfield Center, N. Y., R. D. 2.

TOWN OF HADLEY

Population 672

No. 861—Farm of 200 acres; located 4 miles from Hadley P. O.; $\frac{1}{2}$ mile from railway station, on line of D. & H. Ry.; $\frac{1}{4}$ mile from school; 1 mile from milk station. Highways, good condition.

Nearest city, Glens Falls, 12 miles distant, population about 10,000, reached by rail and highway. Surface of farm, rolling. Altitude, 900 feet. Soil, sandy loam. Acres in meadow, 75; in natural pasture, 25; in timber, 100, pine, hemlock, hardwood. Fruit, some apples. Best adapted to potatoes, corn, oats and hay. Fences, wire, good condition. House, 26x20; good condition. Outbuildings in good condition: Watered, house by well, barns by spring, fields by creek and pond. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,000. Terms, cash. Address J. H. Dority, Hadley, N. Y.

TOWN OF MILTON
Population 5,724

* No. 862 — Farm of 50 acres; 1 mile from Rock City Falls P. O.; $\frac{1}{8}$ mile from trolley, on line of E. N. Y. R. R.; $\frac{1}{2}$ mile from school; 5 miles from butter factory and apple storage. Highways, good. Nearest large village, Ballston Spa, population 5,000, 5 miles distant, reached by trolley and highway. Soil, excellent creek loam and gravel. Acres in meadow, 10; in natural pasture, 10; in timber, 5, second growth; acres tillable, 30. Best adapted to dairying, fruit growing, potatoes, buckwheat and hay. Fences, wire, fair condition. House, 6 rooms, poor condition. Watered by well and stream. Splendid trout brook runs through farm. This farm is 7 miles from Saratoga Springs which makes a good market. Unoccupied. Reason for selling, owner has too much land. Price, \$1,500. Terms, \$500 cash. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

* No. 863 — Farm of 50 acres; located 5 miles from Ballston Spa P. O. and railway station, on line of D. & H. Ry.; $\frac{1}{8}$ mile from school and Protestant and Catholic churches. Highways in good condition. Surface of farm, easy slopes. Soil, rich red loam. All tillable. Best adapted to hay, grain, dairy or poultry. Fences, stone and wire, good. House, large, modern, 15 rooms, good condition. Outbuildings, large barns, wagon house, sheds, tool house, ice and hen house, good condition. Watered, house by well and cistern, barns by well, fields by brook. Occupied by owner. Price, \$3,000. Terms, $\frac{1}{2}$ cash. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

* No. 864 — Farm of 23 acres; located 15 miles from Amsterdam P. O. and railway station, on line of N. Y. C. Ry. Surface of farm, nearly level. Acres in timber, 2, pine, birch and maple. Fruit, 10 apple, 1 pear, 18 plum, 1 cherry and 1 peach trees, also grapes, currants, red raspberries, blackberries and strawberries. Fences, good. House, new double bungalow. Outbuildings, shed, poultry house, barn and stalls, 24x34. Watered by well and cistern. Occupied by owner. Price, \$3,200. Terms, \$2,500 cash, balance on mortgage. Address H. L. Reed, agent, Amsterdam, N. Y.

TOWN OF SARATOGA
Population 3,942

No. 865 — Farm of 121 acres; 3 miles from Wayville P. O., R. D. 1; $\frac{1}{4}$ mile from railway station at Cedar Bluff, on line of B. & M. R. R.; 1 mile from school; 2 miles from church; 6 miles from butter factory; $\frac{1}{4}$ mile from condensing plant. Highways, level and smooth. Nearest city, Saratoga Springs, population 14,000, $5\frac{1}{2}$ miles distant, reached by rail and highway. Surface, level, no stone. Soil, good, heavy sand loam. Acres in meadow, 60; in natural pasture, 30; in timber, 15, oak, chestnut and pine; acres tillable, 100. Fruit, pears, plums, cherries, peaches and 5 acres of choice apples. Best adapted to potatoes, corn, oats, rye, wheat and barley. Fences, American wire and rail, good condition. House, 2 stories, 14 rooms, in good condition. Large hay barn, horse barn, wagon house, pig house and corn house, all in good condition. Watered by well and spring. $\frac{3}{4}$ mile from Saratoga Lake. Occupied by owner. Reason for selling, poor health of owner. Price, \$6,000. Terms, \$4,000 down, balance on mortgage. Owner will sell stock and tools if any one desires, at a reasonable price. Address David P. Robins, Wayville, N. Y., R. D. 1.

* No. 866 — Farm of 114 acres; 7 miles from Saratoga Springs P. O., R. D. 1; 2 miles from railway station at Cedar Bluff, on line of B. & M. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches and milk station; 4 miles from butter factory. Highways, good. Surface of farm, slopes a little south, well drained. Soil, clay and sand loam. Acres in meadow, 60; in timber, 13, variety; acres tillable 100. Fruit, 70 apple, 11

* Indicates farm is in hands of agent or real estate dealer.

pear, 16 cherry trees and some grapes. Best adapted to hay, grain, fruit, etc. Fences, wire, board and rail, good condition. House, 2 stories, brick, 8 large rooms and hall, 4 small rooms; telephone in house. Outbuildings, 2 large basement barns; wagon house; hen house; new iron roof on one barn last year; others painted, fair condition. Watered by well, spring and brook. Saratoga Lake, 2 miles from farm; Hudson river, 4 miles; and Adirondack Mountains, 12 miles. Occupied by tenant. Reason for selling to close an estate. Price, \$6,500. Terms, \$3,500 down, remainder on first mortgage, if desired. Address O. V. Howland, agent, Saratoga Springs, N. Y.

No. 867—Farm of 167 acres; located $\frac{1}{2}$ mile from railway station at Burgoyne, on line of B. & M. Ry.; $\frac{1}{4}$ mile from school; 6 miles from churches of all denominations and milk station; $2\frac{1}{2}$ miles from butter factory; 7 miles from milk condensing plant. Highways, State road. R. F. D. to farm. Nearest large village, Saratoga Springs, 6 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, clay loam, sand loam and gravel loam. Acres in meadow, 40; in natural pasture, 22; in timber, 9, pine and chestnut. Acres tillable, 100. Fruit, 45 apple trees, 6 cherry trees and 10 plum trees, also small strawberry patch. Best adapted to dairying or general farming. Fences, barbed wire and rail, fair condition. House, $2\frac{1}{2}$ stories, 2 family, 18 rooms, good condition. Outbuildings, 2 barns, one, 30x52 and one, 20x40, shed, carriage house, hen house, ice house, smoke house, all in good condition except one barn and shed. Watered, house by spring, barn by drilled well, fields by creek. Occupied by owner and tenant. Reason for selling, ill health of owner. Price, \$10,000. Terms, $\frac{1}{2}$ cash, balance on bond and mortgage. Fifteen acres of moulding sand on farm. Address Chauncey A. Wooley, Saratoga Springs, N. Y., R. D. 1.

TOWN OF SARATOGA SPRINGS

Population 13,710

No. 868—Farm of 40 acres; $\frac{1}{2}$ mile from Saratoga Springs; $\frac{3}{4}$ mile from railway station at Saratoga Springs, on line of D. & H. R. R. and B. & M. R. R.; $\frac{3}{4}$ mile from school and churches of all denominations. Highways, State road. Surface of farm, level. Soil,

sandy loam. Acres in meadow, 2; acres tillable, 38. Best adapted to truck gardening. No fences. House, 10 rooms, steam heated, baths and toilets, excellent condition. Outbuildings, large barn, carriage house, green house plant, etc. Watered by city water. This place has been conducted as a hothouse and gardening plant for many years. There are 8 hothouses, averaging 100 feet in length, with a width of about 18 feet, double side benches with large center porch. Houses are heated with hot water boilers, latest designs, new ones having been installed during the last 2 years. Everything modern and in first-class condition. In connection with these hothouses, are 2 large, well constructed boiler houses, with complete outfit and general storage space. Over one of the boiler houses is a 3-room apartment finished off which may be used for help. These houses have been used for growing rhubarb, radishes and lettuce for early market and later in season for cucumbers. About 12 good-sized hot beds, with sash to cover. About 5 acres in asparagus beds; 20 acres in rhubarb used for forcing in hothouses in winter. This business has been running for about 20 years and a market has been established in New York, Albany, Troy, Schenectady and locally which uses all of the products at a good price. Occupied by owner. Reason for selling, death of former owner. Price, \$12,000. Terms, $\frac{1}{2}$ cash, first mortgage on balance. Address Etta C. Wells, 184 Church street, Saratoga Springs, N. Y.

No. 869—Farm of 18 acres; 2 miles from Saratoga Springs P. O., R. D. 7; 2 miles from railroad station at Saratoga Springs, on line of the B. & M. R. R.; 1 mile from school; 2 miles from churches; 2 miles from cheese factory; 4 miles from condensing plant. Good State roads. Nearest city, Saratoga Springs, population about 14,000, distant 2 miles by highway. Surface, part hilly and part level. Soil on level portion, loam. Eight acres of meadow; 2 acres of natural pasture; 5 acres of timber, young birches and others; 11 acres are tillable. Two cherry trees, 1 apple tree and 30 currant bushes. Can raise celery, corn, potatoes or any kind of crop. Fences, wire, not so very good. House, 8 rooms, good condition, with woodshed. Barn, 30x20; wagon shed, 10x20; hog house; underground cow stable. Watered by spring, fields have running water. Saratoga Lake is 2 miles from

farm. Reason for selling, owner has village property. Price, \$1,500. Terms, \$600 down, balance to suit purchaser. Address Nellie E. Driscoll, 2 Pleasant street, Saratoga Springs, N. Y. Owner will rent.

MISCELLANEOUS

No. 870 — Farm of 177 acres; 11 miles from Amsterdam; $3\frac{1}{2}$ miles from West Galway; practically on the line of the proposed trolley line connecting Haganman with Rock City Falls, which will surely come through possibly not within a year or two. Twenty-five acres of tillable land, which would be enough to take care of the place; 81 acres in woods, 5 acres of which is a fine pine

grove. The lake covers 65 acres, fed by trout streams, and there is fine fishing. The soil is a sandy loam, making it a most desirable spot for a sanitarium or club house. There is a new house of 10 rooms and the attic could be finished off for 2 or 3 more rooms; porch, 10x80. A 2-story camp in the pine grove; 2 cottages in pine grove, 12x20 each. Barn, 28x40; barn, 17x35; wagon house, 20x26; granary, 12x20; ice house, 12x12; hog house, 12x14; another building, 22x50, that could be made into a camp. There are 6 boats included with the property. Price, \$5,100. Address A. A. Butterfield, owner, Haganman, N. Y., R. D. 2.

SCHENECTADY COUNTY

Area, 200 square miles. Population, 88,235. Annual precipitation, 35.41 inches. Annual mean temperature, 46.8°. Number of farms, 1,027. County seat, Schenectady.

This county is located in the eastern part of the state intersected by the Mohawk River.

The surface in the western part of the county is uneven and hilly, the hills being small and abrupt with many ravines. This section is suitable for pasturage chiefly. In the southern and western parts and along the Mohawk Valley the soil is black slate and clay loam which is fertile and very productive. The value of all farm property is \$7,217,178, which is an increase of 29.1 per cent. over the census of 1900. The principal crops reported were: corn, 109,694 bushels; oats, 247,945 bushels; buckwheat, 102,165 bushels; rye, 40,259 bushels; potatoes, 87,140 bushels; hay and forage, 33,346 tons. The average price of improved farm lands including buildings is \$55.48 per acre. The average value per acre of farm land only is \$31.10; an increase of nearly \$10 per acre since 1900. Domestic animals are found to be dairy cows, 4,929; horses, 3,162; swine, 2,952; sheep, 3,501; poultry, 62,771. The number of farms reporting dairy cows are 864, producing 2,459,571 gallons of milk, which sold for \$233,271. There are no creameries or cheese factories in the county, as most of the milk is sold in Schenectady and the different villages. The county is crossed by the Erie canal (barge), N. Y. C. & H. R. R., West Shore and D. & H. railroads and by numerous trolley lines leading to Amsterdam, Albany, Troy, etc. Schenectady with a population of 72,826 is known largely as being the seat of Union University, founded in 1795. Here also is located the American Locomotive Works, the second largest plant of its kind in the country. The enormous plant of the General Electric Company employing some 17,000 workmen is also in that city. These two large industrial plants in common with others scattered through the state are largely responsible for the great numbers of farm boys that have quit the farm to work in these industries. There are 51 schools in the county and it has only 28 miles of highway which is not improved. Its agricultural organizations consist of an agricultural club, 3 granges, and poultry, pigeon and pet stock associations.

TOWN OF DUANESBURG

Population 2,211

No. 871 — Farm of about 90 acres; at Braman's Corners; 5 miles from Delanson railway station, on line of D. & H. R. R.; 4 miles from Esperance; 27 miles from Albany; 15 miles from Schenectady; 10 miles from Amsterdam; $\frac{1}{2}$ mile from church, school and store; R. D. New York morning papers reach

the farm at 1 o'clock in the afternoon of the day they are published. Ten acres of timber, balance in meadow and pasture land. Best adapted to corn, rye, oats, buckwheat, potatoes, vegetables and small fruit. Good apple orchard. Comfortable, old-fashioned farm house, in good condition, 2 stories, 7 rooms and large kitchen with sink and pump from never-failing well; stone cellar; woodshed extension. Spring near

house and well in barnyard. Outbuildings, barn, 22x72; hen house and woodshed. Fences, stone and wire. Would make a good dairy or bee farm. Price, \$3,500. Terms to responsible party will be made very easy with but a small payment down as the owner is anxious to have the farm go into good hands. Address F. C. Sauter, 391 Sixth street, Brooklyn, N. Y.

TOWN OF PRINCETOWN

Population 684

* No. 872 — Farm of 150 acres; 13 miles from Schenectady P. O.; 4 miles from railway station at Hoffman's, on line of W. S. R. R.; ½ mile from school; 1 mile from churches. Highways, 1 mile from State road which leads to Sche-

nectady. Nearest cities: Schenectady, 13 miles distant, reached by highway, population about 80,000; Amsterdam, 8 miles distant, population about 25,000. Surface of farm, rolling. Soil, clay loam, excellent. Acres in timber, 25; acres tillable, 125. Fruit, 2 acres of apples, a few pears, trees about 20 years old. Best adapted to hay, grain and dairying. Fences, fair, stone, rail and wire. House, 8 rooms, good condition. Outbuildings, barn, 56x30; cow barn, 20x30; horse barn, 20x24; two sheep barns, 20x30 each; shed, 16x20, good condition. Watered by well and pond. Occupied by tenant. Reason for selling, owner living elsewhere. Price, \$3,500. Terms, ½ cash. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

SCHOHARIE COUNTY

Area, 647 square miles. Population, 23,855. Annual precipitation, 39 inches. Annual mean temperature, 48°. Number of farms, 3,288. County seat, Schoharie.

This county is located in the eastern part of the state intersected by the Schoharie Creek, also drained by the Charlotte River and the Catskill and Cobleskill Creeks.

The surface is mostly hilly, the southern part being occupied by a range of highlands called the Helderbergs. This region is well timbered by oak, hickory, ash, sugar maple, elm and other trees. The soil in this section is a dark slate and gravelly loam. These hills decline and become less rugged toward the north and the dark slaty soil becomes more prevalent. In the northeastern part clay loam is quite prominent. Between these hills lie the valleys of Schoharie, Cobleskill and Fox Creeks, where the soil is a dark and yellow clay loam, deep and fertile. The county as a whole is adapted to pasturage, dairying and general farming. The county ranks second in hops and bees and sixth in the production of buckwheat. Some of the leading crops are corn, 197,520 bushels; oats, 573,010 bushels; buckwheat, 240,770 bushels; rye, 34,207 bushels; potatoes, 307,346 bushels; hops, 2,156,883 pounds; hay and forage, 114,376 tons. The valuation of all farm property is \$14,454,132, a gain of 16 per cent. since the census of 1900. The average price of farm land per acre is \$14.36. The price of improved land including buildings is \$29.12. There are a large number of farms listed in this bulletin that can be bought for considerably less than the average of improved land. Domestic animals reported are dairy cows, 26,138; horses, 8,237; swine, 9,645; sheep, 11,422; poultry, 191,463; production of milk, 13,748,588 gallons with a value of \$1,418,629, including all dairy products. There are 30 milk stations and factories in the county.

The D. & H. railroad with a branch extending to Sharon Springs, a popular health resort, intersects the northern part of the county. The waters of this popular health resort are held in high repute for their medicinal value. The establishment of a well equipped school of agriculture in Cobleskill is likely to be accomplished in the near future. The county has 1,202 miles of improved highways and eight miles of state road. Excellent educational facilities are furnished by 179 district schools and the social and agricultural interests are conserved by 9 societies devoted to the interest of the farmer.

TOWN OF BLENHEIM

Population 616

* No. 873 — Farm of 197 acres; located 2 miles from Blenheim P. O.; 14 miles from railway station at Middle-

burgh, on line of M. & S. R. R.; ½ mile from school; 2 miles from church and butter factory. Highways, good. Surface of farm, level and rolling. Soil, gravelly loam. Acres in meadow, 97; in natural pasture, 20; in timber, 80,

* Indicates farm is in hands of agent or real estate dealer.

white oak, black and red oak, pine, hemlock and basswood. Acres tillable, 117. Fruit, 1 large apple orchard, 200 bearing trees. Large number of hickory nut trees, usually bear about 50 bushels. Best adapted to hay, oats, buckwheat corn and rye. Fences, mostly wire. House, 30x40, built eight years. Outbuildings, large, overshot barn, 2 stories and basement, frame of barn entirely of white oak, large enough for 30 head of cattle. Watered, house, by well; barns, by running water; fields, by springs and streams. Occupied by tenant. Reason for selling, owner has other business. Price, \$4,500. Terms, $\frac{1}{2}$ down, or would sell for \$500 cash and \$25 per month, giving deed when \$1,000 had been paid. Address M. L. Tator, agent, Middleburgh, N. Y.

No. 874—Farm of 53 acres; 6 miles from Stamford P. O., R. D. 1; 6 miles from Stamford railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school and Methodist church; 6 miles from milk station. Highways, hilly. Nearest village, North Blenheim, 3 miles distant, reached by highway. Surface, rolling. Soil, clay loam. Acres in meadow, 7; natural pasture, 10; timber, 36, young pine and hard wood; acres tillable, 8. Fruit, few apple trees. Best adapted to grass. Fences, stone wall, poor condition. No buildings. Watered by spring. Five miles from Catskill Mountains and Mayham Lake. Unoccupied. This would make an ideal place for summer home. Reason for selling, owner has other farms. Price, \$400. Terms, cash. Address Albert C. Mayham, Warwick, N. Y., Orange Co.

No. 875—Farm of 110 acres; 2 miles from Livingstonville P. O.; 9 miles from railway station at Middleburg, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches; 3 miles from creamery. Nearest large village, Middleburg, population, 1,100. Highways, good, part hilly and part level. Surface, rolling. Soil, loam. Acres in meadow, 40; in natural pasture, 10; in timber, 10; sugar bush of about 100 trees; acres tillable, 75. Fruit, 50 apple trees, pears and plums. Best adapted to buckwheat, corn, rye, oats, barley, potatoes, etc. Fences, stone wall and wire, in fair condition. House, 51x18, in good condition; another house, 31x21. Outbuildings: barns, 36x28, 40x18 and 30x40, in

good condition. Watered by springs. This property is 7 miles from Crystal Lake. Occupied by owner. Reason for selling, to settle an estate. This is a very productive farm. Price, \$1,800. Terms, $\frac{1}{2}$ cash, balance on bond and mortgage. Address C. J. Cornelius, Livingstonville, N. Y.

TOWN OF BROOME

Population 983

* No. 876—Farm of 60 acres; 10 miles from Middleburg P. O. and station on line of M. & S. R. R.; $\frac{3}{4}$ mile from school; $\frac{1}{4}$ mile from Methodist church; 1 mile from butter factory. Highways, good. Nearest village, Middleburg, population 1,100, distant 10 miles. Surface, rolling. Altitude, 1,000 feet. Soil, gravelly loam. Twenty acres of meadow; 25 acres of natural pasture; 15 acres of timber, mostly hard wood and hemlock; 45 acres tillable. Fruit, apples, pears, cherries and plums. Land best adapted to raising hay, oats, corn and potatoes. Fences, mostly stone walls. House, 2 stories, with 21 rooms, in good condition, very suitable for large boarding house. Barn, 20x36, with room for 10 cows; outbuildings all in good condition. House has well water; barns and fields watered by springs. Reason for selling, old age of owner. Price, \$1,000. Terms, easy. Address Charles Mann, agent, Middleburg, N. Y.

No. 877—Farm of 253 acres; 9 miles from Middleburg P. O., R. D. 1, and railway station, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 1 mile from church; $2\frac{1}{2}$ miles from butter factory. Highways, good. Surface of farm, mostly level and rolling, some hilly. Soil, good gravelly loam. Acres in meadow, 153; in natural pasture, 50; in timber, 50, mostly hard wood; acres tillable, 203. Fruit, 200 apple trees, 25 plum trees, 3 pear trees, black and red raspberries and currants. Best adapted to dairying. Fences, stone and wire, good condition. Two houses, 24x30, good condition. Outbuildings: barn, 48x40; barn, 30x36; barn, 20x55; hog pen, 20x24, new; hen house, 10x14; new silo, good condition. Watered by running water. Occupied by owner. Reason for selling, poor health of owner. Price, \$2,700. Terms, \$1,250 cash, balance on mortgage at 5%. Address Charles S. Loyd, Middleburg, N. Y., R. D. 1.

* Indicates farm is in hands of agent or real estate dealer.

* No. 878 — Farm of 166 acres; 7 miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches and butter factory. Surface of farm, rolling. Altitude, about 1,000 feet. Soil, mixed loam. Acres in meadow, 40; in natural pasture, 60; in timber, 30, mixed; acres tillable, 120. Variety of fruit. Best adapted to hay, oats, rye, corn, potatoes and buckwheat. Fences, wire and stone. House, 12 rooms, fine condition. Outbuildings, barn, 36x48; barn, 25x41; barn, 36x40; wagon house, 24x30; hen house, 24x30; hog pen, 12x24. Watered by well and spring. Crystal Lake is 1 mile from farm. Price, \$3,320. Terms easy. Address Charles Mann, agent, Middleburg, N. Y.

* No. 879 — Farm of 200 acres; located 2 miles from Bates P. O., R. F. D.; 20 miles from railway station at Middleburg, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Methodist church and butter factory. Highways, good. Surface of farm, level and rolling. Soil, gravelly loam. Acres in meadow, 160; in natural pasture, 35; in timber, 15, mostly hard wood. Acres tillable, 150. Fruit, 40 apple trees and some young trees, plenty of small fruit. Best adapted to hay, corn, oats, buckwheat and rye. Fences in good condition. House large, 12 rooms, good repair, telephone in house. Outbuildings, large barn, 3 stories, wagon house, 40x46; basement for 50 sheep, both in good repair. Watered, house by running water; barns, by spring; fields, by spring. Occupied by owner. Reason for selling, ill health of owner's wife. Price, \$3,750. Terms, would sell on a payment of \$200 down and monthly payment of \$50, giving deed when \$800 had been paid. Address L. J. King, agent, Middleburg, N. Y.

* No. 880 — Farm of 100 acres; located 1 mile from Franklinton P. O., R. D. 1, 5 miles from railway station at Middleburg, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school and Methodist church; 1 mile from butter factory. Highways, good. Surface of farm, part hilly and part level. Soil, good, gravelly loam. Acres in meadow, 45; in natural pasture, 40; in timber, 15, hemlock, spruce, etc. Acres tillable, 85. Best adapted to hay and grain. Fences,

mostly wire, good condition. House, poor condition. Outbuildings, barn, 26x50, with linter, 12x30. Watered, house and barn by well; fields, by springs. Occupied by owner. Price, \$1,200. Terms, \$700 down, balance on mortgage at 5%, might sell on favorable contract. Address L. J. King, agent, Middleburg, N. Y.

* No. 881 — Farm of 15 acres; located $8\frac{1}{2}$ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school and church; $3\frac{1}{2}$ miles from butter factory. Highways, good. Surface of farm, level. Soil, loam. Acres in timber, 5, spruce, oak, etc. Acres tillable, 10. Fruit, apple trees and some small fruit. Best adapted for poultry farm. Fences, good. House, large, first-class condition. Outbuildings, barn, 18x40, and hen house, 10x22. Watered, house and barn, by well; fields, by spring. Occupied by owner. Price, \$1,200. Terms, $\frac{1}{2}$ cash, balance on mortgage at 5%. Address L. J. King, agent, Middleburg, N. Y.

* No. 882 — Farm of 68 acres; located 1 mile from Franklinton P. O.; 5 miles from railway station at Middleburg, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school and Methodist church; 1 mile from butter factory. Highways, good. Surface of farm, level. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 10; in timber, 8. Acres tillable, 60. Fruit, 30 apple trees and some small fruit. Best adapted to hay and grain. Fences, wire and stone, good condition. House, 36x18, first-class condition. Outbuildings, barn, 26x36; small barn, 20x30; wagon house, 20x30; hog pen, 14x16; all in good condition. Watered, house, by running water; barn, by well; fields, by spring. Occupied by owner. Price, \$1,700. Terms, \$1,000 down, balance on mortgage at 5%; might sell on contract. Address L. J. King, agent, Middleburg, N. Y.

* No. 883 — Farm of 100 acres; located $\frac{1}{2}$ mile from school, postoffice, butter factory and Methodist church. Highways, good. Nearest large village, Middleburg, 5 miles distant, reached by highway. Surface of farm, part level, part hilly. Soil, gravelly loam. Acres in meadow, 62; in natural pasture, 20;

* Indicates farm is in hands of agent or real estate dealer.

in timber, 18, pine, hemlock, hardwood. Acres tillable, 82. Fruit, 50 bearing apple trees and other fruit. Well adapted for stock farm. Fences, good. House, main part, 18x40, with addition, 10x40; summer kitchen, 9x14; wood house, 14x16. Outbuildings, barn, 28x40; wagon house, 30x40; shed, 15x30. Watered by well. Occupied by owner. Reason for selling, ill health of owner. Price, \$1,650. Terms, \$950 down, balance on mortgage. Address M. L. Tatar, agent, Middleburg, N. Y.

* No. 884 — Farm of 160 acres; located 9 miles from railway station at Middleburg, on line of M. & S. R. R.; ½ mile from school; 3 miles from butter factory. Highways good. Surface of farm, level and rolling. Soil, gravelly loam. Acres in meadow, 100; in natural pasture, 30; in timber, 30, mostly spruce. Acres, tillable, 130. Fruit, 50 apple trees and some small fruit. Well adapted for dairy farm. Fences, good. House, 24x30, 11 rooms, good condition. Outbuildings, wagon house, 30x30; pig pen, 14x18; barn, 30x40, 2 stories, shed and stables, 30x50, wagon house and pig pen built in 1902. Watered, house and barn by running water, fields by never-failing springs. Price, \$2,500. Terms, ½ down, balance on mortgage. Address M. L. Tatar, agent, Middleburg, N. Y.

* No. 885 — Farm of 102 acres; located 3½ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; school next to farm; 1½ miles from Methodist church, butter factory and milk station. Highways, good. Surface of farm, rolling. Soil, loam. Acres in meadow, 65; in natural pasture, 25; in timber, 12, mostly hardwood. Acres tillable, 90. Fruit, 40 apple trees and other small fruit. Adapted to any crop grown in this section. Fences, stone and wire, fair condition. House, large, 10 rooms, good condition. Outbuildings, barn, 36x40; barn, 30x40; shed connects the two, 75 feet long; new hen house, 12x24; new hog pen, 16x24; corn house, ice house, 12 feet square; wood house, 20x30. Watered by well. Occupied by owner. Price, \$2,700. Terms, \$1,700 down, balance on mortgage at 5%. Address M. L. Tatar, agent, Middleburg, N. Y.

* No. 886 — Farm of 190 acres; located 5 miles from railway station at

Middleburg, on line of M. & S. R. R. Surface of farm, rolling. Acres in meadow, 50; in natural pasture, 100; in timber, 40, pine, maple, hemlock and hickory. Acres tillable, 150. Fruit, 50 apple trees, 20 pear trees, 20 plum trees and small fruit. Best adapted to oats, rye, barley, potatoes, corn, alfalfa, etc. Fences in good condition, wire and stone. House, 12 rooms, good condition. Outbuildings, barn, 68x26, with basement and ell, 34x20, good condition. Well watered. Price, \$3,500. Terms, ½ cash, balance, easy. Address Charles Mann, agent, Middleburg, N. Y.

* No. 887 — Farm of 160 acres; located 11 miles from railway station at Middleburg, on line of M. & S. R. R.; ½ mile from school and church. House, 12 rooms, running water, good condition. Good barn, 30x40. Some fruit and timber. Price, \$2,000. Terms, \$500 down, balance, easy. Address Charles Mann, agent, Middleburg, N. Y.

* No. 888 — Farm of 150 acres; located 1 mile from Franklinton P. O., R. D. 1; 6 miles from railway station at Middleburg, on line of M. & S. R. R.; 1 mile from school and churches; ¾ mile from butter factory. Highways, good. Surface of farm, 30 acres level, balance sloping. Soil, sandy loam. Acres in natural pasture, 20; in timber, 20. Acres tillable, 110. Fruit, 100 apple trees, also pears and small fruit. Best adapted to grain, corn and potatoes. Fences, wire and stone. House, 16 rooms, in good condition. Outbuildings, 2 barns, wagon house, corn crib and hen house, good condition. Watered, house and barn by well, fields by spring. Occupied by owner. Price, \$2,400. Address Chas. Wehrstedt, agent, Middleburg, N. Y.

* No. 889 — Farm of 52 acres; located 1 mile from Franklinton P. O., R. D. 1, 6 miles from railway station at Middleburg, on line of M. & S. R. R.; 1 mile from school and church; ½ mile from butter factory. Highways, good. Surface of farm, slopes to south. Soil, productive loam. Acres in meadow, 35; in natural pasture, 10; in timber, 7. Acres tillable, 40. Fruit, plums, pears and apples. Best adapted to grain, corn, clover and potatoes. Fences, wire and stone. House, 8 rooms, good inside, not painted on outside. Outbuildings, barn, 30x40;

* Indicates farm is in hands of agent or real estate dealer.

hog pen and wood house, fair condition. Watered by well and spring. Unoccupied. Reason for selling, owner has too much land. Price, \$800. Terms, \$400 down, balance, easy. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 890 — Farm of 60 acres; located 3 miles from Livingstonville P. O., R. D. 1; 10 miles from railway station at Middleburgh, on line of M. & S. R. R.; 1 mile from school and church. Surface of farm, level. Altitude, 1,000 feet. Soil, sandy loam. Acres in timber, 10, variety. Acres tillable, 50. Best adapted to corn, oats, potatoes, etc. House, 22 rooms. Outbuildings, barn, 40x50; hen house. Large sugar maple grove near house. Watered by running water. Unoccupied. Reason for selling, advanced age of owner. Price, \$1,200. Terms, $\frac{1}{2}$ down. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 891 — Farm of 286 acres; located $1\frac{1}{2}$ miles from Franklinton P. O., R. D. 1; $6\frac{1}{2}$ miles from railway station at Middleburgh, on line of M. & S. R. R.; $1\frac{1}{2}$ miles from school and church; 1 mile from butter factory. Highways, good. Surface of farm, level, rolling and hilly. Acres in timber, 35, pine, hemlock, etc. Acres tillable, 250. Fruit, 150 apple trees, also plum and pear trees. Forty walnut and butternut trees. Best adapted to grain, hay, etc. Fences, wire and stone, good. House, 12 rooms, good. Outbuildings, 5 barns, hog pen and hen house. Watered, house by running water, barns and fields by springs. Brook runs through farm. Price, \$2,200. Terms, \$800 down. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 892 — Farm of 216 acres; located $1\frac{1}{2}$ miles from Franklinton P. O.; 6 miles from railway station at Middleburgh, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, loam. Acres in meadow, 156; in natural pasture, 30; in timber, 30, hemlock, ash, beech, etc. Acres tillable, 186. Fruit, apples, cherries, plums and pears. Best adapted to hay, corn, oats, buckwheat, etc. Fences, mostly wire, good condition. House, 9 rooms, good condition. Outbuildings, barn, 30x25; barn, 25x15; wagon house, 20x25, and hog pen. Wa-

tered by well and springs. Occupied by owner. Large pond near farm, good fishing. Reason for selling, owner has other farms. Price, \$2,150. Terms, \$1,050 down and balance on mortgage at 5%. Would sell on contract of \$550 down and \$50 per month until \$1,050 is paid. Address L. J. King, agent, Middleburgh, N. Y.

* No. 893 — Farm of 96 acres; located $1\frac{1}{2}$ miles from Franklinton P. O.; 6 miles from railway station at Middleburgh, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, loam. Acres in meadow, 61; in natural pasture, 15; in timber, 20, hemlock, ash, beech, etc. Acres tillable, 76. Fruit, apples and small fruit. Best adapted to hay, oats, corn, buckwheat, etc. Fences, wire and stone. House, 22x18; needs some repairs. Good barn, 18x25, with addition for hay barn. Watered by well and spring. Occupied by owner. Reason for selling, owner has other farms. Price, \$1,150. Terms, \$700 down and balance on mortgage at 5%. Address L. J. King, agent, Middleburgh, N. Y.

* No. 894 — Farm of 190 acres; located 3 miles from Franklinton P. O.; 8 miles from railway station at Middleburgh, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 3 miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, gravelly loam. Acres in meadow, 100; in natural pasture, 30; in timber, 60, pine, hemlock, oak, etc. Acres tillable, 130. Fruit, apples and small fruit. Best adapted to general farming. Fences, mostly wire, good condition. Large house, 11 rooms, telephone. Outbuildings, barn, 30x40; good sheep barn, cow stable and wagon house combined, room for 10 cows and 70 sheep. Watered by well and stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,000. Terms, \$600 down and \$50 a month until \$1,000 is paid, remainder on mortgage. Address L. J. King, agent, Middleburgh, N. Y.

* No. 895 — Farm of 107 acres; located 5 miles from Middleburgh P. O. and railway station, on line of M. & S.

* Indicates farm is in hands of agent or real estate dealer.

R. R.; $\frac{3}{4}$ mile from school; 2 miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, gravelly loam. Acres in meadow, 77; in natural pasture, 15; in timber, 15, hemlock, ash, maple, etc. Acres tillable, 92. Fruit, apples. Best adapted to hay, corn, oats, buckwheat, etc. Fences, wire and stone, good condition. House, 7 rooms. Outbuildings, barn with large shed attached, hog pen and chicken house, good condition. Watered by well and springs. Worked by owner. Reason for selling, owner has another farm. Price, \$1,200. Terms, \$700 cash. Address L. J. King, agent, Middleburgh, N. Y.

* No. 896 — Farm of 150 acres; located 5 miles from Middleburgh P. O., R. D. No. 1, and railway station, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 2 miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, gravelly loam. Acres in meadow, 100; in natural pasture, 20; in timber, 30, hemlock, pine, ash, etc. Acres tillable, 120. Fruit, apples and small fruit. Best adapted to hay, corn, oats, buckwheat, etc. Fences, wire and stone, good condition. House, 10 rooms, good condition. Outbuildings, two large barns, wagon house and hog pen, good condition. Watered by well and springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$1,750. Terms, $\frac{1}{2}$ down. Address L. J. King, agent, Middleburgh, N. Y.

* No. 897 — Farm of 84 acres; located 1 mile from Franklinton P. O.; 7 miles from railway station at Middleburgh, on line of M. & S. R. R.; 1 mile from school, butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Altitude, 550 feet. Soil, loam. Acres in meadow, 65; in natural pasture, 15; in timber, 4, hardwood. Acres tillable, 80. Fruit, apples and small fruit. Best adapted to hay, corn, oats, etc. Fences, mostly wire, good condition. House, large, 9 rooms, good condition. Outbuildings, two large barns, hog pen, ice house and silo. Watered, house and barns by running water, fields by stream. Large pond on farm. Occupied by owner.

Price, \$1,800. Terms, \$1,050, balance on mortgage at 5%. Reason for selling, other business. Address M. L. Tator, agent, Middleburgh, N. Y.

TOWN OF CARLISLE

Population 1,024

No. 898 — Farm of 150 acres; located $1\frac{1}{2}$ miles from Carlisle P. O.; 4 miles from railway station at Howe's Cave, on line of D. & H. R. R.; $1\frac{1}{2}$ miles from school, churches and butter factory. Highways, somewhat hilly. Nearest large village, Cobleskill, 6 miles distant, reached by highway. Surface of farm, level. Good soil, mostly all tillable. Fruit, apples, plums, pears and grapes. Adapted to any crops grown in this climate. Fences in poor condition. House and barn in good condition. Watered, house and barn by running water, fields by stream. Occupied by tenant. Reason for selling, owner a widow. Price, \$4,200. Terms, $\frac{1}{2}$ down. Address Mrs. Eliza Burns, Carlisle, N. Y.

No. 899 — Farm of 100 acres; located $\frac{3}{4}$ mile from Carlisle P. O.; 7 miles from railway station at Cobleskill, on line of D. & H. R. R.; $\frac{3}{4}$ mile from school, butter factory and Presbyterian church; 4 miles from cheese factory; 7 miles from milk station. Highways, good. Surface of farm, level and rolling except pasture land, which is hilly. Soil, loam and limestone. Acres in meadow, 25; in natural pasture, 10; in timber, 30, maple, hemlock, basswood, etc. Acres tillable, 60. Fruit, plums, cherries and apples enough for home use. Best adapted to corn, wheat, hay, potatoes and alfalfa. Fences, nearly all wire, some stone wall. House, 28x36, with wing, 20x24, slate roof, good condition. Outbuildings, barn, 36x54, good condition; barn, 30x40, good condition; shed and hog pen, 22x50, good condition, and hen house, 12x30. Watered by well, spring and stream. Occupied by owner. Reason for selling, owner wants smaller farm. Price, \$3,000. Terms, \$2,000 cash, balance on easy terms. Address Geo. C. Hemstreet, Carlisle, N. Y.

TOWN OF COBLESKILL

Population 3,579

No. 900 — Farm of 106 acres; 1 mile from Howe Cave P. O. and railway station, on line of D. & H. R. R.; $\frac{1}{2}$

* Indicates farm is in hands of agent or real estate dealer.

mile from school and Reformed church. Highways, good; a State road between Albany and Binghamton passes the house. Nearest large village, Cobleskill, population 2,000, 5 miles distant, reached by highway. Surface, part rolling, part along the Cobleskill Creek. Soil, very fertile, yellow and clay loam. Acres in meadow, 80; natural pasture, 20; timber, 6, hemlock and hardwood; acres tillable, 100. Fruit, about 25 apple trees. Best adapted to oats, rye, hay. Fences, wire and stone, not very good. House, 16 rooms, 4 halls, large pantry and wood house. Outbuildings: barn, cow shed, store house, wagon house, pig pen and hen house. Watered, house by wells, barns by creek, fields by springs and brooks. Cobleskill Creek bounds farm on the north. Occupied by owner. Reason for selling, owner a widow and cannot attend to farm. Price, \$4,000. Terms, cash preferred, but easy terms if necessary. Address Mrs. Mary E. Swart, Howe Cave, N. Y.

No. 901—Farm of 106 acres; 2 miles from Mineral Spring P. O.; 4 miles from railway station, on line of D. & H. R. R.; ½ mile from school; R. D. 1 from Mineral Spring. Highways, good. Nearest large village, Cobleskill, population 2,000, reached by highway. Occupied by owner. Surface, level and rolling. Soil, loam. Acres in meadow, 60; natural pasture, 20; timber, 25; acres tillable, 80. Fruit, 60 apple trees. Best adapted to grain, corn, potatoes and grass. Nine-room house. Outbuildings: barn, 40x50; barn, 15x30; wagon shed, 18x20; hen house, hog pen. Watered by well and spring. Price, \$2,200. Terms, \$1,000 down, balance on mortgage. Address Charles Wehrstedt, Middleburgh, N. Y.

No. 902—Farm of 165 acres; located 2½ miles from Cobleskill P. O. and railway station, on line of D. & H. R. R.; ½ mile from school, cheese factory and Methodist church; 2½ miles from milk station. Highways, good. Surface of farm, level. Soil, gravel loam. Acres in meadow, 25; in natural pasture, 12; in timber and pasture, 65. Acres tillable, 100. Fruit, apples, plums, cherries and pears. Best adapted to alfalfa, wheat, corn, oats and barley. Fences, wood and wire. House, 24x40; wing, 20x48. Outbuildings, barn, 30x50; barn, 24x45;

stable, 40x15; stable, 55x15; horse barn, 22x45; wagon house, 20x35. Watered by well, springs and stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$14,000. Terms, ½ cash, balance on mortgage. Address Sylvester Warner, Warnerville, N. Y. Owner will rent on shares or with option to buy.

TOWN OF CONESVILLE

Population 708

No. 903—Farm of 120 acres; 1 mile from West Conesville P. O.; 6 miles from Grand Gorge railway station, on line of U. & D. R. R.; ½ mile from school; 1 mile from churches; 3 miles from butter factory and milk station. Highways, somewhat hilly but good. Surface, rolling. Soil, clay loam. Acres in meadow, 50; natural pasture, 40; timber, 30, hardwood, some hemlock; acres tillable, 30. Fruit, 4 pear trees, 10 plum trees, 20 apple trees, also grapes, strawberries and currants. Best adapted to oats, barley, buckwheat and corn. Fences, wire, wall and rail, in good condition. House, upright, 30x20, with wing, 36x16. Outbuildings: barn, 50x30, with shed; pigsty, wagon house, 30x32, with horse stable and granary, all in good condition. Watered by well and springs. Farm 1½ miles from Schoharie Creek, Catskill Mountains and Manorkill Creek. Occupied by owner. Price, \$1,800. Terms, ½ cash, balance on bond and mortgage. Address David N. Patrie, West Conesville, N. Y., Schoharie Co. Owner will rent for cash.

* No. 904—Farm of 100 acres; located 2 miles from Conesville P. O.; 8 miles from railway station at Grand Gorge, on line of U. & D. R. R.; 1½ miles from school; 2 miles from Methodist church; 5 miles from butter factory; 2 miles from milk station. Highways in fair condition. Nearest large village, Gilboa, 5 miles distant, reached by highway. Surface of farm, nearly level, a little rough. Soil, fair. Acres in meadow, 45; in natural pasture, 35; in timber, 20, hardwood and hemlock. Acres tillable, 35. Fruit, apples, plums and cherries. Best adapted to corn, potatoes and grain. Fences, wire and stone wall, fair condition. House, 8 rooms, good condition. Outbuildings, 2 large barns, wagon house, pig pen and large shed. Watered by spring. Occu-

* Indicates farm is in hands of agent or real estate dealer.

pied by tenant. Price, \$1,500. Terms, prefer cash. Address R. F. Stevens, agent, Conesville, N. Y. Owner will rent.

* No. 905 — Farm of 100 acres; located 2 miles from Manorkill P. O.; 12 miles from railway station at Grand Gorge, on line of U. & D. R. R.; 15 miles from railway station at Middleburgh, on line of M. & S. R. R.; ¼ mile from school and butter factory; 2 miles from Methodist church. Highways, good. Surface of farm, some level and some rolling. Soil, gravelly loam. Acres in meadow, 60; in natural pasture, 25; in timber, 15, mostly beech and maple. Acres tillable, 85. Fruit, 25 apple trees and some small fruit. Best adapted for dairy farm. Fences, stone and wire, good condition. Outbuildings, barn, 30x40; wagon house, 20x30, and hog pen, 15x20. Watered, running water in house, barns, by water from trough, fields by springs. Occupied by owner. Reason for selling, advanced age and ill health of owner. Price, \$1,250. Terms, will sell on contract of \$200 cash and monthly payments. Address L. J. King, agent, Middleburgh, N. Y.

No. 906 — Farm of 112 acres; located ½ mile from West Conesville P. O.; 6 miles from railway station at Grand Gorge, on line of U. & D. R. R.; ½ mile from school and Methodist church; 3 miles from butter factory; 6 miles from milk station. Highways in good condition. Nearest large village, Stamford, 12 miles distant, reached by highway. Surface of farm, rolling. Soil, quite productive. Acres in meadow, 25; in natural pasture, 62; in timber, 25, pine, hemlock, oak, beech and birch. Acres tillable, 40. Best adapted to corn, oats and potatoes. Fences, wire and stone, fair condition. House, 1½ stories, 6 rooms, good condition. Outbuildings, barn, 32x40, with basement stable; wagon house, 20x32; small granary, hen house, 12x24, fair condition. Watered by springs and creek. Occupied by owner. Price, \$3,000. Terms, easy. Address J. M. Myers, West Conesville, N. Y.

TOWN OF FULTON

Population 1,450

* No. 907 — Farm of 100 acres; 1 mile from Patria P. O.; 3 miles from station, on line of D. & H. R. R.; ½ mile from

school and Protestant church. Highways, good. Nearest village, Middleburgh, population 1,100, distant 3 miles by highway. Unoccupied. Surface, part level and part rolling. Soil, loam. 20 acres of meadow, 20 acres of natural pasture, 40 acres of timber, of all kinds; 60 acres tillable. Fruit consists of about 40 apple, cherry, plum and pear trees. Land is adapted to rye, oats, buckwheat, corn, clover and gardening. Good wire fences. House, 16x26, in fair condition. Large barn, in good condition. House, barns and fields have spring water. Price, \$900. Terms, \$500 down, balance easy payments. Address Charles Wehrstedt, Middleburgh, N. Y.

* No. 908 — Farm of 100 acres; 5 miles from railway station, on line of D. & H. R. R.; post-office at Patria; near school and Protestant church. Highways, good. Nearest large village, Middleburgh, population about 1,100, 5 miles distant, reached by highway. Occupied by owner. Rolling surface. Loam soil. Acres in meadow, 40; natural pasture, 40; timber, 20, pine, hemlock, etc.; acres tillable, 80. Fruit, 30 apple trees. Adapted to general farming. Four acres of hops under cultivation. Fences, wire, good condition. House, 13 rooms, good condition. Outbuildings: 1 barn, 40x60; 1, 30x40; hop house, 24x35; milk house, 12x20; hen house, 12x24; hog pen, 12x20. Watered by well and spring. Price, \$2,250. Terms, \$1,000 down, balance on time. Owner will rent for cash or with option to buy. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 909 — Farm of 150 acres; ½ mile from Fultonham P. O.; 4 miles from railway station, on line of D. & H. R. R.; ½ mile from school and Protestant church. Highways, good. Nearest large village, Middleburgh, population about 1,100, reached by highway. Surface, rolling and flat. Soil, loam. Acres in meadow, 40; natural pasture, 35; timber, 75, all kinds; acres tillable, 75. Fruit, 150 trees. Best adapted to grain, corn and potatoes. Fences, fair. House, 2-family house, 14 rooms, with piazza, good condition. Outbuildings: 2 large barns, hog pen, hennery and wagon house. Watered by well and spring. Reason for selling, owner has other farms. Price, \$2,500. Terms, \$800 down, balance on mortgage. Address Charles Wehrstedt, Middleburgh, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 910—Farm of 10 acres; $\frac{1}{8}$ mile from Fultonham P. O.; 2 miles from railway station, on line of D. & H. R. R.; 1 mile from school and Protestant church. Highways, good. Nearest large village, Middleburgh, population about 1,100, 2 miles distant, reached by highway. Occupied by owner. Surface, level. Soil, loam. Acres in meadow, 6; timber, 4; acres tillable, 6. Fruit, about 50 trees. Fences, wire, good condition. House, 10 rooms, good condition. Outbuildings, barn, 30x35; wood house, henery. Watered by well and spring. Price, \$1,600. Terms, \$500 down, balance on mortgage. Address, Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 911—Farm of 140 acres; $\frac{1}{8}$ mile from Fultonham P. O.; 3 miles from railway station, on line of D. & H. R. R.; 1 mile from school and church. Highways, good. Nearest large village, Middleburgh, population about 1,100, 3 miles distant. Occupied by tenant. Surface, level. Soil, dark loam. Acres in meadow, 80; natural pasture, 30; timber, 30, pine, oak, etc.; acres tillable, 110. Fruit, 200 apple trees, also pear, plum and cherry trees. Best adapted to dairying and general farming. Fences, wire, good condition. House, 12 rooms, first-class condition. Outbuildings: barn, 50x60; barn, 30x46; hen house, hog house, smoke house and wood house. Watered by well and spring. Schoharie River runs whole length of farm. Creamery collects milk at door. Price, \$8,500. Terms, \$4,000 down, balance on bond and mortgage. Address Charles Wehrstadt, Middleburgh, N. Y.

No. 912—Farm of 165 acres; $2\frac{1}{2}$ miles from post office; 9 miles from Richmondville railway station, on line of D. & H. R. R.; $\frac{1}{4}$ mile from school; $\frac{3}{4}$ mile from Methodist church and milk station. Highways, somewhat hilly. Nearest large village, Richmondville, population about 600, reached by highway. Surface, a little rolling. Soil, gravel and limestone. Acres in meadow, 70; natural pasture, 60; timber, 30, oak, maple and beech; acres tillable, 135. Fruit, about 35 apple trees. Best adapted to potatoes, buckwheat, barley and oats. Fences, stone wall, fair condition. House, $1\frac{1}{2}$ stories, fair size, good condition. Outbuildings: quite a large barn, in fair condition; wagon house,

pig pen. Watered by well and spring. Occupied by tenant. Reason for selling, owner has not the time to look after farm. A new railroad will soon be completed which will be within 4 miles of farm. Price, \$1,200 cash or \$1,250 and take payment of \$600 down. Owner will rent with option to buy. Address John E. Wharton, Summit, Schoharie Co., N. Y.

* No. 913—Farm of 50 acres; $4\frac{1}{2}$ miles from railway station, on line of D. & H. R. R.; close to post office at Patria; school and church nearby. Highways, good. Nearest large village, Middleburgh, population, 1,100, $4\frac{1}{2}$ miles distant, reached by highway. Unoccupied. Soil; loam. Acres in meadow, 20; natural pasture, 20; timber, 10; acres tillable, 40. Best adapted to grass, grain and potatoes. House, 5 rooms, poor condition. Outbuildings: barn, 30x40; other outbuildings, in fair condition. Watered by well, spring and brook. Reason for selling, owner has other farms. Price, \$800. Terms, \$400 down. Address Charles Wehrstedt, Middleburgh, N. Y.

* No. 914—Farm of 100 acres; 5 miles from railway station, on line of D. & H. R. R.; close to post office, school and Protestant church. Highways, good. Nearest large village, Middleburgh, 5 miles distant, reached by highway. Occupied by owner. Surface, level. Soil, loam. Acres in meadow, 40; natural pasture, 40; timber, 20; acres tillable, 60. About 50 fruit trees. Best adapted to corn, grain, potatoes, etc. Fences, wire, good condition. House, 7 rooms, piazza, good condition. Outbuildings: barn, 30x40; barn, 20x40; wagon house, 24x18; hen house, hog pen and blacksmith shop. Watered by well and spring. Price, \$2,000. Terms, $\frac{1}{2}$ down, balance on time. Address Charles Wehrstedt, agent, Middleburgh, N. Y.

* No. 915—Farm of 9 acres; $\frac{1}{2}$ mile from Middleburgh P. O. and railway station, on line of D. & H. R. R.; $\frac{1}{2}$ mile from high school and all churches; R. D. 1 from Middleburgh. Highways, good. Nearest large village, Middleburgh, reached by State road. Occupied by owner. Surface, level. Soil, loam. Acres tillable, 9. Best adapted to corn and vegetables. Fences, wire, good condition.

* Indicates farm is in hands of agent or real estate dealer.

House, 18 rooms, piazza, first-class condition. Outbuildings: barn, 30x40; corn house, 18x24; hen house, ice house and dancing hall. This place is situated on the Schoharie River. Reason for selling, advanced age of owner. Price, \$4,000. Terms, \$1,000 down, balance on mortgage. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 916 — Farm of 100 acres; located $\frac{1}{8}$ miles from Patria P. O.; 6 miles from railway station at Cobleskill, on line of D. & H. R. R.; $\frac{1}{8}$ mile from school and church. Highways, good. Surface of farm, sloping. Soil, loam. Acres in timber, 25. Acres tillable, 75. Fruit, 30 apple trees. Best adapted to grain, corn, potatoes, etc. Fences, wire, good. House, 11 rooms, 2 stories, wood house connected. Outbuildings, barn, 40x60; barn, 30x40; hop house, milk house, hen house and hog pen. Watered, house by well, barns and fields by spring. Occupied by owner. Price, \$2,200. Terms, \$800 down, balance on time. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 917 — Farm of 100 acres; located $\frac{1}{8}$ mile from Patria P. O.; 6 miles from railway station at Cobleskill, on line of D. & H. R. R.; $\frac{1}{8}$ mile from school and church. Highways, good. Surface of farm, level. Soil, sandy loam. Acres tillable, 90. Fruit, apple orchard. Best adapted to grain, corn and vegetables. Fences, wire, good. House, 2 stories, 26x36, built two years ago. Outbuildings, barn, 40x50; shed, hog pen and hen house, good condition. Watered, house and barn by well, fields by springs. Occupied by owner. Price, \$2,000. Terms, \$1,000 down. Address Chas. Wehrstedt, Middleburgh, N. Y.

* No. 918 — Farm of 50 acres; located $\frac{1}{8}$ mile from Patria P. O.; 6 miles from railway station at Cobleskill, on line of D. & H. R. R.; $\frac{1}{8}$ mile from school and church. Highways, good. Surface of farm, level. Soil, loam. Acres tillable, 45. Fruit, apple orchard. Best adapted to grain, corn, potatoes, etc. Fences, wire, good condition. House, 12 rooms, wood house and summer kitchen. Outbuildings, barn, 40x40, with basement; hog pen, etc., all in good condition. Watered, house by well, fields and barns by spring. Occupied by owner. Reason

for selling, owner wants to buy larger farm. Price, \$1,200. Terms, \$800 down, balance on time. Address Chas. Wehrstedt, agent, Middleburgh, N. Y.

* No. 919 — Farm of 165 acres; located $\frac{1}{4}$ miles from Middleburgh P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{4}$ mile from school; $\frac{1}{2}$ mile from Union church; $\frac{1}{2}$ miles from butter factory and milk station. Highways, level. Surface of farm, mostly level. Altitude, 700 feet. Acres in meadow, 20; in natural pasture, 40; in timber, 10, hardwood, pine and hemlock. Acres tillable, 100. Fruit, apples and small fruit. Best adapted to wheat, corn, alfalfa, hay, etc. Fences, wire. House, large, good condition. Barn, 45x55, good condition. Watered by well. Occupied by tenant. Reason for selling, owner has too much land. Price, \$3,300. Terms, \$2,000 cash, balance easy. Address Chas. Mann, agent, Middleburgh, N. Y.

* No. 920 — Farm of 320 acres; located $1\frac{1}{2}$ miles from West Fulton P. O.; 7 miles from railway station at Middleburgh, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school and Methodist church; $1\frac{1}{2}$ miles from butter factory. Highways, good. Surface of farm, part level and part rolling. Soil, loam. Acres in meadow, 170; in natural pasture, 50; in timber, 100, pine, hemlock and oak. Acres tillable, 220. Fruit, 100 apple trees, also pears, cherries and plums. Adapted to general farming. Fences, mostly wire, good condition. House, large, 14 rooms, good condition. Outbuildings, barn, 40x70; granary, hog pen and hen house, all in good condition. Watered by well and springs. Occupied by owner. Price, \$1,900. Terms, \$1,100 down, balance on mortgage at 5%. Address M. L. Tator, agent, Middleburgh, N. Y.

TOWN OF GILBOA

Population 1,467

* No. 921 — Farm of 110 acres; $\frac{1}{2}$ miles from Stamford P. O. and railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school and church; $\frac{1}{2}$ miles from butter factory. Highways, fairly good. Nearest large village, Stamford, population about 1,000 reached by highway. Surface, rolling. Acres in meadow, 30; natural pasture, 50; timber, 30, hardwood, some hemlock; acres tillable, 50. Fruit, about 30 apple trees,

* Indicates farm is in hands of agent or real estate dealer.

few cherry trees. Best adapted to oats, potatoes, buckwheat and rye. Fences, mainly stone wall, in fair condition. House, 26x36, wood house attached, fair condition. Barn, 30x40, stable attached, fair condition. Watered by springs. This would make a good dairy farm. Occupied by tenant. Price, \$1,800. Terms, part cash, balance on mortgage. Address Harriet E. Wheeler, owner, 136 Lancaster street, Albany, N. Y., or M. S. Wilcox, agent, Jefferson, N. Y. Owner will rent.

No. 922—Farm of 202 acres; $2\frac{1}{2}$ miles from Grand Gorge P. O.; 3 miles from railway station at Grand Gorge and South Gilboa, on line of U. & D. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from church; 2 miles from butter factory; $1\frac{1}{2}$ miles from milk station. Highways, good. Nearest large village, Stamford, population about 1,000 reached by rail and highway, 7 miles distant. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 100; in natural pasture, 27; in timber, 75; hard wood, beech, ash and maple; acres tillable, 100. Fruit, 35 apple trees, besides pears, cherries, plums, grapes, currants and berries. Best adapted to hay, oats, corn, buckwheat and potatoes. Fences, barbed wire, good condition. House, 22x36, 2 stories, nearly new, excellent condition. Outbuildings: barn, 48x20, with stable; barn, 60x18; barn, 30x20, nearly new. Watered by well, spring and stream. Occupied by owner. Reason for selling, to close an estate. Price, \$6,000, including 19 cows, 3 horses, 4 head of young stock or \$5,000 for farm alone. Address Mrs. R. E. Mayhan, South Gilboa, N. Y., Box 17.

TOWN OF JEFFERSON

Population 1,280

* No. 923 — Farm of 240 acres; $1\frac{1}{2}$ miles from Jefferson P. O.; 6 miles from railway station, on U. & D. R. R.; $\frac{1}{2}$ mile from school, churches, butter factory and milk station. Highways, fairly good. Nearest large village, Stamford, population about 1,000, reached by highway. Surface, rolling and level. Soil, good gravelly loam. Acres in meadow, 60; natural pasture, 130; timber, 50, spruce and hemlock; acres tillable, 120. Fruit, about 30 apple trees and a few pear trees. Best adapted to grass, oats, potatoes, buckwheat and

rye. Fences, stone. House, 9 rooms, fair condition. Outbuildings: barn and cow stable, 46x60; hog pen; granary and horse barn, 26x36. Watered, house, by well; barns and fields, by springs. Summit Lake, 7 miles distant. The spruce and hemlock standing on this farm put into lumber would half pay for farm. Occupied by tenant. Reason for selling, owner desires to avoid care of farm. Price, \$20 per acre, depending on whether spruce and hemlock are reserved or sold with farm. Terms, small amount down, balance on mortgage. Address Harriet E. Wheeler, owner, 136 Lancaster street, Albany, N. Y., or M. S. Wilcox, agent, Jefferson, N. Y. Owner will rent.

* No. 924 — Farm of 220 acres; $1\frac{1}{2}$ miles from Jefferson P. O.; 6 miles from Stamford railway station, on line of U. & D. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches, butter factory and milk station. Highways, fairly good. Nearest village, Jefferson, with 3 churches, 8 stores, high school, steam sawmill, 3 blacksmith shops, and hotel. Surface, rolling and level. Soil, good loam. Acres in meadow, 50; natural pasture, 110; timber, 60, maple, beech and ash; acres tillable, 100. Fruit, apples. Best adapted to grass, oats, potatoes, buckwheat and rye. Fences, stone and wire, fair condition. House, large, 2 stories, built for summer boarders. Outbuildings: barn, 60x46, recently built, basement cow stable attached to barn. Watered, house, by well; barns and fields, by springs. Delaware river 6 miles distant. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$20 per acre. Terms, part cash, balance on time. Address Harriet E. Wheeler, 136 Lancaster street, Albany, N. Y., or M. S. Wilcox, agent, Jefferson, N. Y. Owner will rent.

* No. 925 — Farm of 115 acres; $1\frac{1}{2}$ miles from Jefferson P. O.; 12 miles from railway station at Richmondville, on line of D. & H. R. R.; 7 miles from Stamford, on U. & D. R. R.; $1\frac{1}{2}$ miles from school, churches, butter factory and milk station. Highways, good. Nearest village, Jefferson, population 500, $1\frac{1}{2}$ miles distant, reached by highway. Surface, part hilly, part rolling. Acres in meadow, 30; in natural pasture, 60; in timber, 25, hard wood; acres tillable, 50. Fair orchard of

* Indicates farm is in hands of agent or real estate dealer.

grafted fruit. Best adapted to potatoes, oats, buckwheat and grass. Fences, largely stone walls. House, $1\frac{1}{2}$ stories, 28×36 , fair condition. Barn, 30×40 and stable, fair condition. Watered from well; barns and fields, by springs. Occupied by tenant. Reason for selling, owner wants larger farm. Price, \$1,200. Terms, $\frac{1}{2}$ cash, $\frac{1}{2}$ bond and mortgage. Address M. S. Wilcox, attorney, Jefferson, Schoharie Co., N. Y. Owner will rent.

TOWN OF MIDDLEBURG
Population 2,538

No. 926 — Farm of 126 acres; 1 mile from Huntersland P. O.; 4 miles from railway station at Middleburg, on line of M. & S. R. R.; 1 mile from school, churches and butter factory. Highways, good. Surface of farm, part hilly and part rolling. Altitude, about 800 feet. Soil, good. Acres in meadow, 25; in natural pasture, 75; in timber, 26, hard wood; acres tillable, 100. Fruit, apples, pears and cherries. Best adapted to buckwheat, oats, corn and rye. Fences, stone walls, fair condition. House, 20×30 , fair condition. Outbuildings, barn, 26×36 ; hog pen, 15×20 ; shed, 15×25 , fair condition. Watered by running water. Unoccupied. Reason for selling, owner has too much land. Price, \$1,000. Terms, \$500 down, balance on mortgage. Address Otto Gridley, Middleburg, N. Y.

No. 927 — Farm of 85 acres; $4\frac{1}{2}$ miles from Middleburg P. O.; 3 miles by private road; $4\frac{1}{2}$ miles from railway station at Middleburg, on line of M. & S. R. R. and D. & H. R. R.; 1 mile from school; 1 mile from Protestant church; $4\frac{1}{2}$ miles from churches of various denominations; $4\frac{1}{2}$ miles from butter factory. Highways, somewhat hilly, but good. Nearest city, Albany, population 100,000, 28 miles distant, reached by rail and State road. Surface of farm, rolling and level. High, healthful location, overlooking Schoharie Valley. Soil, loam. Acres in meadow, 30; in natural pasture, 20; in timber, 8, oak, maple, white and yellow pine; acres tillable, 60. Fruit, 40 apple trees, 1 plum tree, 1 cherry and 2 pear trees. Best adapted to oats, corn, hops, buckwheat, hay and potatoes. Fences, wire and stone wall, in good condition. House, 42×24 , 8 rooms in good condi-

tion, addition, 12×16 ; interior of house, with the exception of 2 rooms, has been recently repapered and painted. Barn, 30×48 , has new roof, needs a little repairing on outside. Watered, house, by well; barns and fields, by spring. Ten miles from Warners Lake. Occupied by owner. Reason for selling, owner in poor health. Price, \$1,750. Terms, \$1,000 cash, balance on mortgage, easy terms. Address Charles F. Goepel, Middleburg, N. Y.

No. 928 — Farm of 18 acres; $1\frac{1}{2}$ miles from Middleburg P. O. and station, on line of M. & S. R. R.; $1\frac{1}{2}$ miles from school; 1 mile from Protestant churches; $1\frac{1}{2}$ miles from cheese factory. Highways, good, level. Nearest village, Middleburg, $1\frac{1}{2}$ miles distant by highway, with population of 1,100. Surface, level. Altitude, 900 feet. Soil, limestone. Eight acres of meadows; 6 acres of natural pasture; 18 acres tillable. Number of very fine apple, pear, plum and peach trees, and small fruits of all kinds. Adapted to raising alfalfa, hay, potatoes and oats. Fences, in fair condition. Cottage house of 9 rooms, in good condition. Barn, 24×30 , with fine wagon house and all outbuildings, in good condition. House has well water; barns, well water; fields, running water. The Schoharie river borders on this farm. It has a fine view of country; is on fine stone roads near good markets. Occupied by the owner. Possession can be given immediately. Reason for selling, age of owner. Price, \$2,200. Terms, \$1,000, remainder on easy terms. Address agent, Charles Mann, Middleburg, N. Y.

* No. 929 — Farm of 319 acres; $3\frac{1}{2}$ miles from Middleburg P. O., R. D. 1, and station on line of M. & S. R. R.; 1 mile from school; $3\frac{1}{2}$ miles from churches and butter factory. Good crushed-stone roads. Nearest village, Middleburg, population 1,100, distant about $3\frac{1}{2}$ miles by highway. Surface, hilly, rolling, and some level. Soil, slaty loam. Thirty acres of meadow; 50 acres of natural pasture; 80 acres of timber; 18,000 feet of hemlock, besides beech, birch and maple in abundance; acres tillable, 200. Over 100 fine apple trees. Crops of alfalfa, hay, rye, oats, corn and potatoes can be raised.

* Indicates farm is in hands of agent or real estate dealer.

Good wire fences. Seven-room cottage, in good condition; 2-story house of 6 rooms. Barns: 30x40 with cow shed for 25 cows, and fine silo; another for sheep, 80 feet long; with all outbuildings in good condition. House has well water; barns have running water; fields have springs. A fine dairy and sheep form, also 10 acres of good hops. Occupied by tenant. Possession can be given at once. Reason for selling, owner has too much other business. Price, \$3,300. Terms, \$1,500 down, remainder on easy payments. Address agent, Chas. Mann, Middleburg, N. Y.

* No. 930—Farm of 140 acres; $\frac{3}{4}$ mile from Middleburg P. O. and station, on line of M. & S. R. R.; 1 mile from school, Protestant churches and butter factory. Highways, level. Nearest village, Middleburg, distant about 1 mile, population 1,100, reached by highway. Surface, level. Soil, a very fine loam. Twenty acres of meadow; 20 acres of natural pasture; 10 acres of timber, hardwood, pine and hemlock; 130 acres tillable. Fine young orchard, besides pears, plums, cherries, peaches, and other small fruits. Adapted to raising of alfalfa, hay, wheat, corn and rye. Fences, in good condition, wire. New 2-story house, 10 rooms, in fine condition. Barn, 45x65, with shed, corn crib, hop house, hen house, wagon house; all outbuildings in good repair. House and barns have well water; fields have running water. This is a very fertile farm and a good money-maker. Occupied by tenant. Reason for selling, old age of owner. Price, \$9,500. Terms, \$2,000 down with easy terms. Address Chas. Mann, agent, Middleburg, N. Y.

* No. 931—Farm of 150 acres; $2\frac{1}{2}$ miles from Middleburg P. O. and station on line of the M. & S. R. R.; $\frac{1}{2}$ mile from school; $3\frac{1}{2}$ miles from Protestant churches and butter factory. Highways, good. Nearest village, Middleburg, population 1,100, $3\frac{1}{2}$ miles distant by highway. Surface, rolling. Altitude, 700 feet. Soil, limestone. Acres of meadow, 25; in natural pasture, 40; in timber, 50; acres tillable, 100. Over 50 fine apple trees, and pears, plums, peaches and small fruit. Adapted to raising of hay, rye, corn, oats, alfalfa and clover. Fences, wire. House, 2 stories, 15 rooms, painted. Barn, 40x60, in fine condition, with wagon house,

hen house, ice house and a good sawmill. House is watered by well water; barn, by running water; fields, by brooks. This is a fine dairy farm, with sawmill and good water power. Occupied by owner. Reason for selling, owner tired of farming. Price, \$3,200. Terms, easy. Address agent, Chas. Mann, Middleburg, N. Y.

* No. 932—Farm of 300 acres; $1\frac{1}{4}$ miles from Middleburg P. O. and railroad station, on line of the M. & S. R. R.; $1\frac{1}{4}$ miles from school, Protestant churches and butter factory. Highways, good. Nearest village, Middleburg, population 1,100, distant $1\frac{1}{4}$ miles by highway. Surface, partly level and partly rolling. Altitude, 1,000 feet. Soil, good. Sixty acres of meadow; 40 acres of natural pasture; 100 acres of timber, pine, hemlock and oak; acres tillable, 200. Three hundred apple, pear, plum and peach trees, and all small fruit in abundance. Crops easily raised of hops, corn, rye, hay and potatoes. Fences, wire. House, 10 rooms. Barn, 50x55; another, 26x76; another, 24x30; another, 24x70; hop house; pig pen; milk and ice house; all in good condition. House, barn and fields have running water. This is a good sheep and dairy farm. Occupied by tenant. Reason for selling, owner has other farms. Price, \$4,000. Terms, \$2,000 down, balance on easy terms. Address Chas. Mann, agent, Middleburg, N. Y.

* No. 933—Farm of 160 acres; 4 miles from Middleburg P. O. and railway station, on line of the M. & S. R. R.; 1 mile from school; 4 miles from churches and butter factory. Highways, good. Nearest large village, Middleburg, population 1,100, 4 miles distant, reached by highway. Surface, rolling. Acres in meadow, 30; in natural pasture, 40; in timber, 13, hemlock, maple, spruce and oak; acres tillable, 120. Fine fruit, 18 acres of good hops. Best adapted to hops, alfalfa, all crops grown in this climate. Fences, wire, in good condition. Cottage house, 8 rooms, all painted; house in good condition, with running water. Barn suitable for 20 cows, 6 horses, size 36x60, good hop house and all outbuildings. Watered by running water from springs. Occupied by owner. Price, \$5,200. Terms, easy. Address Charles Mann, agent, Middleburg, Schoharie Co., N. Y.

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* No. 934 — Farm of 112 acres; $3\frac{1}{4}$ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; 400 feet from school; $3\frac{1}{2}$ miles from churches and butter factory. Highways, good. Nearest large village, Middleburg, population 1,100, $3\frac{1}{2}$ miles distant, reached by highway. Surface, mostly level. Soil, slaty. Acres in meadow, 12; in natural pasture, 15; in timber, 15; acres tillable, 80. Fruit for family use. Best adapted to hay, oats, rye, potatoes, alfalfa. Fences, good. Cottage house, 12 rooms. Watered by well and springs. Occupied by owner. Reason for selling, owner has too many farms. Price, \$3,200. Terms, easy. Address Charles Mann, agent, Middleburg, Schoharie Co., N. Y.

* No. 935 — Farm of 85 acres; 2 miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{3}{4}$ mile from school; 2 miles from churches and butter factory. Highways, good. Nearest village, Middleburg, population 1,100, 2 miles distant, reached by highway. Surface, rolling. Soil, slaty loam. Acres in meadow, 10; in natural pasture, 15; in timber, 12, pine, birch and oak; acres tillable, 65, 165 apple trees and small fruits. Best adapted to general farming. Fences, in good condition. Cottage house, 9 rooms, in good condition. Barn for 30 cows, 4 horses, in good condition. Watered by springs. Occupied by owner. Reason for selling, owner has too many farms. Price, \$2,200. Terms, easy. Address Charles Mann, agent, Middleburg, Schoharie Co., N. Y.

* No. 936 — Farm of 220 acres; 6 miles from Middleburg P. O. and station, on line of the M. & S. R. R.; $1\frac{1}{2}$ miles from school and Methodist church; $1\frac{1}{2}$ miles from butter factory. Highways, good. Nearest village is Middleburg, population 1,100, distant about 6 miles. Surface, rolling. Altitude, 1,200 feet. Soil, slate. Forty acres of natural pasture; 25 acres of timber, hard wood and hemlock; acres tillable, 190. Fruit, apple and small fruit trees. Adapted to raising of hay, oats, potatoes and buckwheat. Fences, rails. House, in cottage style, 9 rooms; tenant house, 8 rooms. Barn, 28x68, and all outbuildings in good condition.

House has well water; barns and fields have running water. Crystal Lake, 3 miles distant. This would make a very fine dairy and sheep farm, and is very productive. Occupied by owner. Reason for selling, poor health of owner. Price, \$1,700. Address agent, Charles Mann, Middleburg, N. Y.

* No. 937 — Farm of 100 acres; $2\frac{1}{2}$ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches and butter factory. Nearest village, Middleburg, population 1,100, $2\frac{1}{2}$ miles distant, reached by highway. Surface, level. Soil, good. Acres in meadow, 15; in natural pasture, 12; in timber, 25; acres tillable, 65. Good fruit. Best adapted to hops, oats, corn, and potatoes. Fences in good condition. Cottage house, 10 rooms, all painted and in good condition. Watered by well and springs. Occupied by owner. Reason for selling, illness in owner's family. Price, \$2,500. Terms, easy. Address Charles Mann, agent, Middleburg, Schoharie Co., N. Y.

* No. 938 — Farm of 45 acres; located 3 miles from Huntersland P. O., 6 miles from railway station at Middleburg, on line of M. & S. Ry., $1\frac{1}{2}$ miles from school and church, 3 miles from butter factory. Highways, good. Surface of farm, level. Soil, loam. Acres in timber, 25, second growth. Acres tillable, 20. Best adapted to grain, corn and oats. House, 7 rooms, wood shed. Outbuildings: barn, 25x35, fair condition. Watered, house and barn by well; fields, by spring. Occupied by tenant. Reason for selling, owner lives in another state. Price, \$600. Terms, $\frac{1}{2}$ down, balance \$50 yearly. Address Charles Wehrstedt, agent, Middleburg, N. Y.

* No. 939 — Farm of 190 acres; located $3\frac{1}{2}$ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{4}$ mile from school and church. Highways, good. Surface of farm, part level, part side hill. Soil, loam. Acres in natural pasture, 40; in timber, 70. Acres tillable, 80. Fruit, 50 apple trees. Best adapted to grain, corn, potatoes, etc. Fences, wire and stone, good. House, new 8 rooms and piazza. Outbuildings: barn, 30x40; barn, 18x36 and

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hog pen. Watered, house by well; barn and fields by springs. Occupied by owner. Price, \$1,650. Terms, \$650 down, balance on time to suit purchaser. Four acre hop yard on this farm. Address Chas. Wehrstedt, agent, Middleburg, N. Y.

* No. 940 — Farm of 50 acres; located 2½ miles from railway station at Middleburg, on line of M. & S. Ry.; ½ mile from school; 2 miles from churches and butter factory. Highways, good. Surface of farm, level. Soil, sandy loam. Acres in timber, 8. Acres tillable, 42. Fruit, 175 apple, 50 peach, 4 pear and 6 plum trees. Adapted to grain, corn and vegetables. Fences, wire, good. House, 7 rooms. Outbuildings: barn, 26x50; barn, 28x32. Watered, house by well; barns and fields, by spring. Occupied by owner. Reason for selling, owner wants to buy a larger farm. Price, \$1,400. Address Chas. Wehrstedt, agent, Middleburg, N. Y.

* No. 941 — Farm of 116 acres; located ¾ mile from Huntersland P. O., 5 miles from railway station at Middleburg, on line of M. & S. Ry.; ¾ mile from school, churches and butter factory. Highways, good. Surface of farm, level. Soil, loam. Acres in meadow, 76; in natural pasture, 20; in timber, 20, hemlock, etc. Acres tillable, 96. Fruit, 40 apple trees and considerable small fruit. Best adapted to oats, hay, buckwheat and hops. Fences, wire and board, good condition. House, 15 rooms, excellent condition. Outbuildings: barn, 54x24; shed, 44x24, new hog pen; hop house, etc. Watered, house and barn by well; fields by springs. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$2,750. Terms, \$1,250 cash, balance at 5%. Address M. L. Tator, Middleburg, N. Y.

* No. 942 — Farm of 130 acres; located 1½ miles from Middleburg P. O. and railway station, on line of M. & S. Ry.; 1½ miles from high school, churches and butter factory. Highways, good. Surface of farm, level and rolling. Altitude, 900 feet. Soil, sandy loam. Acres in meadow, 25; in natural pasture, 15; in timber, 35. Acres tillable, 80. Fruit, 250 apple trees, 50 plum and cherry trees. Best adapted to grain, potatoes,

vegetables, alfalfa, etc. Fences, wire, good. Two houses, one 12 rooms, good condition and one, 5 rooms, fair condition. Outbuildings: barn, 30x50, with basement, new; one 20x30, fair; two large hen houses, etc. Watered, house by well; barns and fields by springs. Occupied by owner. Price, \$2,700. Terms, \$700 down, balance on mortgage. Address Chas. Wehrstedt, agent, Middleburg, N. Y.

* No. 943 — Farm of 98 acres; located 7 miles from railway station at Middleburg, on line of M. & S. Ry.; 600 feet from school. Adapted to general farming. Good soil. Good house and barn. Some timber. Price, \$1,400. Terms, \$600 down. Address Chas. Mann, agent, Middleburg, N. Y.

* No. 944 — Farm of 220 acres; located 2 miles from Huntersland P. O.; 6½ miles from railway station at Middleburg, on line of M. & S. Ry.; 1½ miles from school, church and butter factory. Highways, good. Surface of farm level and rolling. Soil, gravelly loam. Acres in meadow, 125; in natural pasture, 50; in timber, 45, mostly hard wood, some hemlock and pine. Acres tillable, 175. Fruit, 50 bearing apple trees and different kinds of small fruit, plums, cherries and berries. Best adapted to oats, potatoes, hay, rye, and corn. Fences, stone and wire, good condition. House, large, 2 stories, 12 rooms. Outbuildings: barn, 36x48; shed, 36x20, all in fair repair. Watered by well, barn by trough, fields by springs. Unoccupied. Reason for selling, to close an estate. Price, \$1,900. Terms, \$1,000 cash, balance on mortgage at 5%. Address M. L. Tator, agent, Middleburg, N. Y.

* No. 945 — Farm of 75 acres; located 3 miles from Middleburg P. O. and railway station, on line of M. & S. Ry.; ½ mile from school; 1 mile from church; 3 miles from butter factory. Highways, good. Surface of farm, level and rolling. Soil, gravelly loam. Acres in meadow, 55; in natural pasture, 10; in timber, 10, second growth, enough hemlock to keep buildings in repair. Acres tillable, 55. Fruit, 15 apple trees, cherries and plums. Best adapted to potatoes, oats, hay, millet, corn and hops. Fences, stone and wire. House, large,

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22x30, 11 rooms, good condition. Outbuildings: barn, 30x42; cow stable attached for 6 cows, wagon house, 24x36; hop house, 24x36; hog pen, 15x12; corn crib, 10x12 and hen house, 22x12. Watered, house, by well and cistern; barns, by trough; fields by springs. Occupied by owner. Reason for selling, advance age and ill health of owner. Price, \$2,300. Terms, \$1,100 cash, balance on mortgage at 5% or might sell on contract of \$300 cash and \$50 per month until \$1,000 paid when deed will be given. Address M. L. Tator, agent, Middleburg, N. Y.

* No. 946 — Farm of 67 acres; located 6 miles from Middleburg P. O., R. D. No. 2 and railway station, on line of M. & S. R. R.; $\frac{3}{4}$ mile from school, butter factory and churches. Highways, good. Surface of farm, part level and part rolling. Soil, gravelly loam. Acres in meadow, 57; in natural pasture, 6; in timber, 4, mostly hard wood, some hemlock. Acres tillable, 63. Fruit, 75 apple trees. Best adapted to hay, oats, corn, etc. Fences, mostly wire, good condition. House, 6 rooms, fair condition. Outbuildings, barn, 70x20; barn, 20x20, and shop, 12x12, fair condition. Watered by well, creek and springs. This farm is 3 miles from Crystal Lake. Occupied by owner. Reason for selling, owner in other business. Price, \$1,200. Terms, \$700 down, balance on mortgage at 5%. Address L. J. King, agent, Middleburg, N. Y.

* No. 947 — Farm of 70 acres; located 2 miles from Huntersland P. O.; 5 miles from railway station at Middleburg, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; 2 miles from butter factory and Protestant churches. Highways, good. Surface of farm, rolling. Soil, gravelly loam. Acres in meadow, 50; in natural pasture, 10; in timber, 10; hemlock, pine, beech, maple, etc. Acres tillable, 60. Fruit, apples, pears and plums. Best adapted to wheat, corn, rye, hay and potatoes. Fences, mostly wire, good condition. House, 8 rooms, good condition. Outbuildings, barn, 32x45; wagon house, 25x30; linter, 33x16; pig pen and hen house, all in good repair. Watered by springs. Occupied by tenant. Reason for selling, owner lives in city and cannot attend to farm. Price,

\$1,350. Terms, \$1,050 down, balance on mortgage. Address M. L. Tator, agent, Middleburg, N. Y.

* No. 948 — Farm of 48 acres; located $2\frac{1}{4}$ miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{3}{4}$ mile from school; $2\frac{1}{2}$ miles from butter factory, milk station and Protestant churches. Highways, good. Surface of farm, sloping. Altitude, 800 feet. Soil, loam. Acres in meadow, 10; in natural pasture, 10; in timber, 4, beech, birch and other hard wood. Acres tillable, 40. Fruit, apples, cherries, plums, pears and small fruit. Best adapted to alfalfa, corn, oats, wheat, hay and potatoes. Fences, wire and rail, fair condition. House, 10 rooms, good condition. Outbuildings, barn, 30x50, and other outbuildings, all in good condition. Watered by well and springs. Occupied by tenant. Reason for selling, owner a widow. Price, \$1,300. Terms, \$600 cash. Address Chas. Mann, agent, Middleburg, N. Y.

* No. 949 — Farm of 100 acres; located $\frac{1}{2}$ mile from East Cobleskill P. O.; $2\frac{1}{2}$ miles from Howe's Cave railway station, on line of D. & H. R. R.; 1 mile from school, milk station and Methodist church. Nearest large village, Cobleskill, 6 miles distant. Surface of farm, rolling. Altitude, 1,000 feet. Soil, limestone, good. Acres in meadow, 40; in natural pasture, 20; in timber, 40, pine, hemlock and hardwood. Acres tillable, 60. Fruit, apples, plums, pears and other small fruit. Best adapted to alfalfa, wheat, corn, potatoes, etc. Fences, wire, good condition. House, 8 rooms, fair condition. Outbuildings, barn, 40x50, fair condition. Watered by well and springs. Occupied by owner. Reason for selling, owner has too many farms. Price, \$1,600. Terms, \$600 down, balance easy. Address Chas. Mann, agent, Middleburg, N. Y.

* No. 950 — Farm of 35 acres; located 5 miles from Middleburg P. O., R. D. No. 2, and railway station, on line of M. & S. R. R.; $\frac{3}{4}$ mile from school and butter factory; $\frac{1}{4}$ mile from Protestant churches. Highways in good condition. Surface of farm, part level and part hilly. Altitude, 550 feet. Soil, loam. Acres in meadow, 25; in natural pasture,

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4; in timber, 6, some good size. Acres tillable, 29. Fruit, apples, pears, plums and cherries. Adapted to all crops grown in this climate. Fences, wire and stone, good condition. House, 18x36, with wood house, 18x24, good condition. Outbuildings: barn, 24x40; hen house, 10x12. Watered by well and stream. Large lake 4 miles from farm. Occupied by owner. Reason for selling, ill health of wife of owner. Price, \$1,250. Terms, \$750 down. Address M. L. Tator, agent, Middleburg, N. Y.

* No. 951—Farm of 55 acres; located 5 miles from Middleburg P. O., R. D. No. 2, and railway station, on line of M. & S. R. R.; $\frac{1}{4}$ mile from school, butter factory and Protestant churches. Highways, good. Surface of farm, level and rolling. Altitude, 550 feet. Soil, loam. Acres in meadow, 39; in natural pasture, 10; in timber, 6, maple, beech and basswood. Acres tillable, 49. Fruit, apples, pears and cherries. Adapted to any crops grown in this climate. Fences, wire, good condition. House, 7 rooms, good condition. Barn, 30x50; hog pen, chicken house, good condition. Watered by well, creek and springs. Occupied by owner. Reason for selling, owner desires to get large stock farm. Price, \$1,250. Terms, \$750 down, balance on mortgage at 5% int. Address M. L. Taylor, agent, Middleburg, N. Y.

* No. 952—Farm of 160 acres; located 7 miles from Middleburg P. O. and railway station, on line of M. & S. R. R.; $\frac{1}{4}$ mile from school; 2 miles from butter factory and Methodist church. Highways, good. Surface of farm, part level and part rolling. Soil, loam. Acres in meadow, 120; in natural pasture, 10; in timber, 30, hardwood and hemlock. Acres tillable, 130. Fruit, apples, pears, plums and cherries. Best adapted to hay, corn, oats and grains. Fences, mostly wire, good condition. House, large, 9 rooms, good condition. Outbuildings: barn, 35x48; shed, 48x24; wagon house, 42x20; wagon house, 24x16; hen house, 18x14; wood house, 24x16; hog pen, 18x12; wash house, 12x22. Watered, house by well and spring, barns by well, fields by springs. Occupied by tenant. Reason for selling, owner has other farms. Price, \$3,500. Terms, \$2,000 down, balance on mortgage at 5%. Address L. J. King, agent, Middleburg, N. Y.

TOWN OF SEWARD

Population 1,419

No. 953—Farm of 100 acres; $3\frac{1}{2}$ miles from Seward P. O. and railway station, on line of D. & H. R. R.; R. D. $3\frac{1}{2}$ miles from Seward; 6 miles from Cobleskill. Highways, good. Soil, mostly sandy loam, some clay. Acres in meadow, 40; tillable, 75; natural pasture, 15; timber, 10, beech, maple, basswood, oak, medium and small. Fruit, 40 apple, 5 pear and 5 plum trees. Best adapted to oats, corn, buckwheat, rye and grass. Fences, mostly post and wire. House, large, brick, with fireplace, old style, in fair condition. Large barn, with horse stables and wagon house attached, in fair condition. Watered, house by well, fields by durable springs. This farm would make a fine summer home; 6 miles from Sharon Springs. Reason for selling, owner no longer able to manage farm. Price, \$4,000. Terms, \$2,000 cash, balance on mortgage at 8%. Address H. T. Dana, Cobleskill, N. Y.

No. 954—Farm of 24 acres; 1 mile from Dorloo P. O.; 2 miles from railway station at Seward, on line of D. & H. R. R.; 1 mile from school and church; 2 miles from milk station. Highways, good. Nearest large village, Cobleskill, 9 miles distant, reached by rail and highway. Surface of farm, mostly rolling, some level. Soil, clay and gravel. Acres in meadow, 12; in natural pasture, 3; in timber, 9; acres tillable, 15. Fruit, apples, pears, plums and berries. Best adapted to hops and all kinds of grain. Fences, board and wire, fair condition. House, 20x25, with wing, 15x20, fair condition. Outbuildings: barn, 20x30; hop house, 25x30; hen house in basement of barn; small wood house, hog pen, fair condition. Watered, house by well, barns by creek, fields by springs. Occupied by tenant. Reason for selling, death of wife of owner. Price, \$900. Terms, $\frac{1}{2}$ cash, balance on bond and mortgage. Address Barney Vrooman, Hyndsville, N. Y. Owner will rent.

* No. 955—Farm of 100 acres; located $\frac{3}{4}$ mile from Hyndsville P. O. and railway station, on line of D. & H. R. R.; $\frac{3}{4}$ mile from school, milk station and Protestant churches. Highways, good. Nearest large village, Cobleskill, 5 miles distant, reached by rail and high-

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way. Surface of farm, part level and part rolling. Soil, loam. Acres in meadow, 85; in natural pasture, 5; in timber, 10, hemlock and hardwood. Acres tillable, 90. Fruit, apples and small fruits. Best adapted to general farming. Fences, wire, good condition. House, large, 8 rooms, good condition. Outbuildings: large basement barn, has stables for 11 cows upstairs and basement for 20 more; ice house, hog pen and chicken house, all in good condition. Watered, house by well, barn by running water, fields by springs. This farm is not far from Sharon Springs, a noted summer resort. Occupied by tenant. Reason for selling, ill health of owner. Price, \$3,500. Terms, \$1,000 down, balance on mortgage at 5%. Address M. L. Tator, agent, Middleburg, N. Y.

TOWN OF SHARON

Population 1,825

No. 956 — Farm of 120 acres; 2 miles from Sharon Springs; R. D. Soil, black loam and clay loam. 50 acres meadow, 30 pasture, 18 timber. Large house, in fair condition. Hop house, 25x40, in good condition; barn needs repairs. Well and creek water. Fairly well fenced. Price, \$3,000. Address J. & A. Hatter, Canajoharie, N. Y.

No. 957 — Farm of 200 acres; 5 miles from Sharon Springs; R. D. This farm keeps 8 horses, 18 head of cattle. Large house, 20 rooms, in fine condition. Large barns and other buildings, in good condition. Well watered. Fences, good. Price, \$6,000. Terms, $\frac{1}{2}$ cash, balance on easy terms. Owner will rent with option to buy. Name and address of owner, C. M. Onderdonk, Sharon Springs, N. Y., R. D. 2.

TOWN OF WRIGHT

Population 963

No. 958 — Farm of 216 acres; 3 miles from Quaker Street P. O.; $3\frac{1}{4}$ miles from railway station, on line of D. & H. R. R.; $\frac{1}{4}$ mile from school; 3 miles from churches; R. D. 1 from Central Bridge; $3\frac{1}{4}$ miles from creameries. Highways, somewhat hilly but good. Nearest large village, Schoharie, population, 1,000, 6 miles distant, reached by highway. Occupied by tenant. Surface, mostly rolling and level, some side hills. Soil, clay loam and limestone. Acres in timber, 15, pine, oak and beech; acres tillable, 160.

Fruit, about 150 apple trees, a few cherries and pears. Best adapted to hay, grain and rye. Fences, wire, stone and stump, poor condition. House, 15 rooms, good condition. Telephone in house. Large storage house for straw and baled hay; wagon house and barn, good condition. Watered by well and brook. Reason for selling, to settle estate. Fish pond could easily be constructed on this farm. Price, \$7,000, including stock and tools. Terms, \$4,000 down, balance on bond and mortgage. Address Eugene Hardin, 322 Manning Boulevard, Albany, N. Y. Owner will rent with option to buy.

No. 959 — Farm of 120 acres; 3 miles from Schoharie P. O., R. D. 1; 3 miles from railroad station at Schoharie, on line of M. & S. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{4}$ miles from churches, Methodist and Reformed; $1\frac{1}{4}$ miles from butter factory; 3 miles from cheese factory; 7 miles from milk station. State roads and no hills. Nearest large village, Schoharie, population of 1,000, reached by highway. Surface, $\frac{1}{2}$ level, $\frac{1}{2}$ sloping to northeast. Altitude, about 700 feet. Soil, dark and yellow loam and lime. 36 acres meadow, 20 acres natural pasture, 30 acres timber, hemlock, pine, beech, oak, maple and red cedar. There are about 500 trees, quite large timber, and 200 sugar maples, large and medium size; 80 acres tillable. Fruit consists of 100 apple and a few plum, peach, cherry and grapes. Land best adapted to corn, hops, oats, rye and hay. Stone, board and wire fences, in fair condition. Two-story frame house, 30x24, 9 rooms, in good condition, partly new, with large porch. Two barns, 36x48 and 30x60, adjoining, 18 feet high; cow and horse stable in 1 barn; up to date chicken and hop house, 24x60. Watered, house by wells, barns by wells, fields by springs and creek. Fox's Creek on one line; Warner's Lake, 9 miles distant. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,000, reasonable, part down. Will sell timberland for \$2,000 or farm without timberland for \$3,000. Address J. W. Taylor, Schoharie, N. Y., or S. F. Taylor, 306 Quail Street, Albany, N. Y. Owner will rent.

* No. 960 — Farm of 144 acres; located $1\frac{1}{2}$ miles from West Berne; 6 miles from railway station at Schoharie;

* Indicates farm is in hands of agent or real estate dealer.

1 mile from school; $2\frac{1}{2}$ miles from churches; near butter factory. Good soil. Acres in timber, 25; acres tillable, 90. Fruit, young orchard, 200 trees. Fences, wire and board, good. House, 18 rooms, good. Outbuildings, good. Good water at house and barn. Best adapted to alfalfa, corn, oats, wheat and potatoes. Price, \$5,500. Terms, \$2,500 down, balance easy. Address Chas. Mann, agent, Middleburg, N. Y.

No. 961—Farm of 100 acres; located $2\frac{1}{2}$ miles from Gallupville P. O.; 6 miles from railway station at Schoharie; $\frac{3}{4}$

mile from school; $2\frac{1}{2}$ miles from butter factory and Protestant churches. Highways, somewhat hilly but good. Surface of farm, mostly level. Soil, clay. Acres in meadow, 20; in natural pasture, 8; in timber, 15, hemlock, pine and oak. Acres tillable, 80. Fruit, plums, apples and pears. Best adapted to oats, rye, barley, hops and corn. Fences, wire, poor condition. House in fair condition. Outbuildings, barn, needs repairing; sheds, hog pen and hop house. Watered by well and springs. Occupied by tenant. Price, \$1,800. Terms, cash. Address Mrs. Morgan Taggart, Gallupville, N. Y.

SCHUYLER COUNTY

Area, 335 square miles. Population, 14,004. Annual precipitation, 36.99 inches. Annual mean temperature, 48.4°. Number of farms, 1,920. County seat, Watkins.

The county is situated in the south central part of the state. The lower part of Seneca Lake extends into this county. The surface is undulated with gentle inclination from each side to Seneca Lake and Kayuta Creek. Springs abound in every section of the county, furnishing an abundant supply of pure water, which finds its way to the lake through deep ravines which occur on either side along the shore. Near the lake the soil is very fertile, sandy and gravelly loam predominating, while clay loam prevails in the rest of the county. Natural gas is found in large quantities. In this county are located the largest salt producing plants in the world. The leading crops are reported as follows: Corn, 134,500 bushels; oats, 291,237 bushels; wheat, 83,906 bushels; barley, 30,259 bushels; rye, 28,024 bushels; dry beans, 15,237 bushels; potatoes, 365,815 bushels; hay and forage, 44,344 tons. The total value of all farm property is \$9,263,801, an increase of 10 per cent. over the census of 1900. Domestic animals reported are dairy cows, 5,945; horses, 5,392; swine, 5,401; sheep, 22,982; poultry, 88,114; total production of milk, 3,222,190 gallons, which with the products of 5 milk stations and factories sold for \$174,342.

The county is intersected by the Northern Central, a part of the Pennsylvania system and branches of the Lehigh Valley and New York Central railroads. In this county is located the famous Watkins Glen State Park, which is visited by thousands of people annually, because of its wonderful beauty and attractive features. There are 105 district schools in the county and Cook Academy, one of the famous preparatory schools of the state, is located near Watkins. The county has 573 miles of improved highway and 10 miles of state and county roads. Most of the products of the county are sold in local markets, but Buffalo, New York, and Philadelphia furnish unlimited markets for the products of the county. Schuyler county lies in the fruit belt of the state, where a good deal of attention is given to the cultivation of apples, pears, peaches, grapes and small fruits.

TOWN OF CATHARINE

Population 1,222

No. 962—Farm of 53 acres; 2 miles from Alpine P. O., R. D. 1, and 2 miles from railway station at Alpine, on line of L. V. R. R.; $\frac{1}{2}$ mile from school; 2 miles from churches; 1 mile from milk station. Located on State road. Nearest city, Elmira, population about 40,000, 18 miles distant, reached by rail and highway. Surface of farm, nearly level. Soil, loam. Acres in meadow, 30; in natural pasture, 20; in timber, 3, hemlock; acres

tillable, 35. Fruit, apples and pears. Best adapted to corn, oats, buckwheat and wheat. Fences in poor condition. House, 9 rooms, fair condition. Outbuildings: barn, 30x40; wagon house and cow stables, 60x22. Watered, house and barn by well, fields by springs. Occupied by owner. Reason for selling, advanced age and poor health of owner. This farm is located 7 miles from Seneca Lake on a main road. Price, \$2,000. Terms, $\frac{1}{2}$ down, balance can run for 10 years. Address Arthur S. Brown, Alpine, N. Y., R. D. 1.

No. 963—Farm of 110 acres; $4\frac{1}{2}$ miles from Alpine P. O., R. D. 2; 5 miles from railway station at Odessa, on line of L. V. R. R.; 1 mile from school; 2 miles from churches; 5 miles from milk station. Highways, good. Nearest city, Ithaca, population about 15,000, 11 miles distant, reached by highway. Surface of farm, level and rolling. Soil, gravel and loam. Acres in meadow, 60; in natural pasture, 19; in timber, 30, hemlock, chestnut and hardwood; acres tillable, 80. Fruit, 60 apple, 4 pear and 3 plum trees. Best adapted to buckwheat, oats, barley and wheat. Fences, mostly stump and rail, good condition. House, 6 rooms, good condition. Outbuildings: barn, 32x44, gambrel roof, good condition, shed attached, 24x50, gambrel roof; horse and carriage barn, 32x44, good condition. Watered, house by well, barn by running water, fields by stream. A small lake is $1\frac{1}{2}$ miles from farm. Occupied by tenant. Reason for selling, owner wants to retire. Price, \$3,000. Terms, $\frac{1}{2}$ down. Address Lewis W. Erway, Odessa, N. Y.

No. 964—Farm of 110 acres; located $1\frac{1}{2}$ miles from Alpine P. O., R. D. No. 3, and railway station, on line of Lehigh Valley R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from milk station and Methodist church. Highways, good. Nearest cities, Ithaca and Elmira, 14 miles distant, reached by highway. Surface of farm, generally level, sloping slightly to the south. Soil, gravelly loam. Acres in meadow, 40; in timber, 8, hemlock, chestnut, pine and oak. Acres tillable, 102. Fruit, apples, plums and pears. Best adapted to potatoes, buckwheat, oats, corn and clover. Fences, rail and wire, fair condition. House, 10 rooms, 2 stories, newly painted, first-class condition. Outbuildings: barn, 36x72, with basement; shed, 28x40; good hen, hog and corn house, all in good condition. Watered by well and springs. Occupied by owners. Reason for selling, to close an estate. Price, \$2,600. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address Lyman King, Alpine, N. Y.

TOWN OF DIX

Population 3,625

No. 965—Farm of 70 acres; 6 miles from Watkins P. O., R. D. 3; 4 miles from railway station at Beaver Dams, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school, churches and grange hall; 4 miles from milk station. Highways, good. Nearest city, Elmira, population about

40,000, 15 miles distant, reached by highway and rail; village of Watkins 5 miles distant. Surface, rolling and level. Altitude, about 1,200 feet. Soil, black and gray loam. Acres in meadow, 15; in natural pasture, 10; in timber, 5, maple and hemlock; acres tillable, 40. Fruit, 25 peach, 12 pear, 5 quince, 25 plum, 80 apple trees, grapes and 100 strawberry plants. Best adapted to corn, oats, potatoes, wheat, buckwheat, rye, etc. This is a good farm for the raising of fruit, especially cherries, as it is sheltered from the north winds. Fences, road and line fences, American wire. House, large, well built, excellent condition. Outbuildings: barn, 70x40, gambrel roof, in excellent condition, except roof. Watered, 2 springs piped to house and barn. Occupied by owner. Reason for selling, owner a widow and cannot attend to farm. Price, \$4,000. Terms, $\frac{1}{2}$ cash, balance on bond and mortgage. Owner will rent. Address Mrs. Jennie M. Lockwood, Watkins, N. Y., R. D. 3.

No. 966—Farm of 122 acres; located 5 miles from Watkins P. O., R. D. 4; $\frac{1}{2}$ mile from railway station at Wentz, on line of N. Y. C. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches, creamery; wagon going to Dundee passes farm. Highways, hilly but good. Surface of farm, rolling and level. Altitude, 1,300 feet. Soil, loam and gravel. Acres in meadow, 55; in natural pasture, 5; in timber, 22, pine and hemlock. Acres tillable, 95. Fruit, apples, peaches, pears, plums and cherries. Best adapted to potatoes, hay, wheat, sheep and general farming. Fences, woven wire, all built within last 5 years. House, 6 rooms, summer kitchen and wood house, good condition. Outbuildings, barn built in 1910, 64x36, basement; hen house and pig pen built in 1908. Watered by well and springs. Occupied by tenant. Reason for selling, owner in other business. Price, \$6,000. Terms, cash preferred. Address Bert R. Wixson, Central Y. M. C. A., Room 300, Philadelphia, Pa.

TOWN OF HECTOR

Population 3,514

No. 967—Farm of 65 acres; located 4 miles from Burdett P. O., R. D. 1; 4 miles from railway station at Burdett, on line of L. V. R. R.; $\frac{1}{4}$ mile from school; 2 miles from church, butter factory and milk station. Highways, good. Nearest large village, Watkins, 7 miles

distant, reached by highway. Surface of farm, level and rolling. Altitude, 1,100 feet. Soil, gravelly. Acres in meadow, 20; in natural pasture, 5; in timber, 15, chestnut and oak. Acres tillable, 50. Fruit, apples, about 20 trees. Fences, wire and rail, fair condition. House good size and in good condition. Outbuildings: main barn, 32x44, nearly new; shop and hen house, in good condition. Watered, house by well, barn by creek, fields by springs. Occupied by owner. Reason for selling, owner wants larger farm. Price, \$2,500. Terms, \$1,800 down, balance on long time. Address Andrew Coon, Burdett, N. Y., R. D. 1.

No. 968 — Farm of 65 acres; located 1 mile from post office; 5 miles from railway station at Burdett, on line of L. V. R. R.; 1 mile from school and Methodist church; 3 miles from milk station. Highways in fair condition. Altitude, 1,000 feet. Soil, gravelly loam. Acres in meadow, 10; in natural pasture, 10; in timber, 10, chestnut and oak. Acres tillable, 30. Fruit, 25 apple, 2 pear trees and some cherries. Best adapted to oats, wheat, corn, potatoes, beans and buckwheat. Fences, rail and stump, poor condition. House, 10 rooms, good condition. Outbuildings, barn, 30x40, with straw shed attached; barn with basement, good condition. Watered, house by well, barn by spring, fields by spring. Reason for selling, ill health of owner. Price, \$1,500. Terms, cash. Address LeRoy Welch, Burdett, N. Y.

No. 969 — Farm of 85 acres; located 3 miles from Bennettsburg P. O., R. D. 2, from Burdett; 4 miles from railway station at Burdett, on line of Lehigh Valley R. R.; ½ mile from school; 2½ miles from Methodist church; 3 miles from Baptist church; 12 miles from butter factory; 4 miles from milk station; 2½ miles from milk condensing plant. Highways, generally good, somewhat hilly. Nearest large village, Watkins, 7 miles distant, reached by highway. Surface of farm, level and rolling. Altitude, 1,700 feet. Soil, loam. Acres in meadow, 45; in natural pasture, 10; in timber, 15, nearly all hardwood, young. Acres tillable, 15. Fruit, apples and cherries. Best adapted to potatoes and all spring crops. Fences, line fences good, pasture enclosed by new wire fence. Old house, in poor condition. Barn, 32x40, fair condition, and straw shed, 18x32. Watered by well and

springs. Unoccupied. Price, \$2,000. Terms, \$1,000 cash, balance on mortgage. Address Lina B. Robinson, Burdett, N. Y.

No. 970 — Farm of 60 acres; located ½ mile from Hector P. O., R. D. 1; 1 mile from railway station at Hector, on line of L. V. R. R.; ½ mile from school; 3 miles from milk station; 1½ miles from Presbyterian church; 3 miles from Methodist church. Highways, good. Nearest large village, Watkins, 7 miles distant, reached by highway. Surface of farm, sloping. Altitude, about 900 feet. Soil, clay loam. Acres in meadow, 10; in natural pasture, 4; in timber, 6, oak, hickory and maple. Acres tillable, 54. Fruit, 3,000 peach trees, 70 plum trees, 125 cherry trees, 20 apple trees, 16 pear trees, and 15 acres of grapes. Best adapted to fruit, corn, wheat, oats and hay. Fences, wire and rail, fair condition. Large brick house, 11 rooms, good condition. Outbuildings: barn, 32x60, good condition; hen house, fruit house, wood house, ice house and garage. Watered, house by well and cistern, barn by running water, fields by springs. This farm borders on Seneca Lake for about 40 rods. Occupied by owner. Reason for selling, owner wishes to retire from business. For price and terms, address Eugene Erway, Hector, N. Y.

No. 971 — Farm of 40 acres; located 1¼ miles from Hector P. O., R. D. 1; 1 mile from railway station at Hector, on line of L. V. R. R.; ½ mile from school; 1½ miles from Methodist church; 3 miles from milk station. Highways, good. Nearest large village, Watkins, 7 miles distant, reached by highway. Surface of farm, sloping. Altitude, about 900 feet. Soil, clay loam. Acres in meadow, 10; in timber, 1, oak and hickory. Acres tillable, 39. Fruit, 1,000 peach, 6 pear, 4 apple and 6 cherry trees, also 3 acres of grapes. Best adapted to fruit, wheat, corn, oats and hay. Fences, wire, fair condition. Large frame house, good condition. Outbuildings: small barn, in poor condition and hen house. Watered by well and spring. Occupied by tenant. Reason for selling, owner wishes to retire from business. For price and terms, address Eugene Erway, Hector, N. Y.

TOWN OF MONTOUR

Population 1,608

No. 972 — Farm of 32 acres; 1½ miles from Montour Falls P. O., R. D. 1, and

railroad station, on line of the Penn. R. R.; 1 mile from school; $1\frac{1}{2}$ miles from Protestant churches and milk station. Highways, good. Nearest village, Montour Falls, population 1,200, $1\frac{1}{2}$ miles distant, by highway and trolley. Surface, $\frac{1}{2}$ level and $\frac{1}{2}$ rolling; excellent locality for fruit growing and poultry raising. Soil, gravelly loam. Acres tillable, 32. Fruit, 6 cherry, 8 pear, 40 apple trees, all standard varieties. Land adapted to all crops. Fences, mostly wire. Seven-room house. Barn, 30x40. House and barn watered from well, fields by springs. Seneca Lake is 4 miles distant, reached by macadam road and trolley. Montour Falls, near this farm, is a thriving manufacturing town, with a manufactories, high schools and academy. Occupied by owner. Reason for selling, owner has 2 other farms. Price, \$1,800. Terms, \$1,000 down, mortgage for balance. Address Chas. L. Doolittle, Montour Falls, N. Y., R. D. 1.

No. 973 — Farm of about 14 acres; $\frac{1}{2}$ mile from Montour Falls P. O., R. D. 1; $\frac{1}{2}$ mile from railway station at Montour Falls, on line of N. C. R. R.; $\frac{1}{2}$ mile from school and churches. Highways, somewhat hilly but good. Nearest large villages, Montour Falls and Watkins, population 1,200 and 3,000 respectively. Watkins 3 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, about 200 feet. Soil, clay and sandy loam. Acres in timber, 2, pine, chestnut and poplar; acres tillable, 12. Fruit, cherries, pears and apples, about 30 trees. House, 11 rooms, good condition. Barn, 30x40, good condition. Watered, house by running spring. Reason for selling, poor health of owner. Price, \$1,900. Terms, \$700 down, balance to suit purchaser. Address Cornelia E. L. Bausch, 105 W. Gray street, Elmira, N. Y.

No. 974 — Farm of 105 acres; located 2 miles from Montour Falls P. O. and railway station, on line of Northern Central R. R.; 1 mile from school; 2 miles from churches. Highways, somewhat hilly but good. Surface of farm, rolling. Soil, sand and gravel. Acres in meadow, 14; in natural pasture, 20; in timber, 35, oak, hickory, walnut, pine, chestnut, basswood, etc. Acres tillable, 70. Fruit, apples, peaches, plums and grapes.

Fences, wire and rail, poor condition. House, 24x32; wing, 15x24, 2 stories, 11 rooms. Outbuildings: a good barn, 42x48; chicken coop, etc. Watered, house by well, barns by creek, fields by springs. Reason for selling, owner lives too far away to look after farm. Price, \$3,500. Terms, \$1,000, remainder on mortgage at 5% int. Address Joseph A. Fitzpatrick, 506 Baldwin street, Elmira, N. Y. Owner will rent for cash or on shares.

No. 975 — Farm of 80 acres; located 1 mile from P. O. and 1 mile from railway station, on line of Northern Central R. R.; 1 mile from school; $1\frac{1}{2}$ miles from churches and milk station; $\frac{1}{4}$ mile from butter factory. Highways a little rolling. Surface of farm, comparatively level. Soil, gravelly. Acres tillable, 70. Fruit, cherries, plums, pears. Best adapted to wheat, rye, oats, buckwheat, corn and beans. Fences, mostly wire, fair condition. House, 2 stories, 9 rooms, good condition. Outbuildings: corn house, 14x25; barn, 30x50, good condition, and 2 sheds in fair condition. Watered, house and barn by well, fields by springs. House unoccupied. Price, \$4,500. Terms, \$2,000 down, balance on mortgage at 6%. Address Mrs. Alice Drake, Montour Falls, N. Y. Owner will rent.

TOWN OF TYRONE

Population 1,285

* No. 976 — Farm of 84 acres; located 7 miles from Dundee P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from Baptist church; 7 miles from butter factory and milk station. Nearest large village, Watkins, 11 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 1,500 feet. Soil, loam. Acres in meadow, 5; in timber, 10; heavy second growth. Acres tillable, 84. Fruit, apples, pear and cherries. Best adapted to rye, wheat, barley, oats and corn. Fences, line fences in fair condition, no inside fences. House, 10 rooms, poor condition. Outbuildings: barn, 30x40, on basement; wagon and horse barn, 30x40, new roofs. Watered by well and spring. Unoccupied. Reason for selling, to close an estate. Price, \$2,400. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address C. C. Harvey, agent, Dundee, N. Y.

* Indicates farm is in hands of agent or real estate dealer.



FIG. 147.—HOUSE ON FARM NO. 970, TOWN OF HECTOR,
SCHUYLER COUNTY.



FIG. 148.—HOUSE ON FARM NO. 971, TOWN OF HECTOR,
SCHUYLER COUNTY.

SENECA COUNTY

Area, 346 square miles. Population, 26,972. Annual precipitation, 39.55 inches. Annual mean temperature, 49.1°. Number of farms, 2,085. County seat, Waterloo.

This county lies in the central part of the state between Seneca and Cayuga Lakes.

The greater part of the surface is undulating and elevated. In the northern part the surface is level with the fertile sandy loam found in all sections of the "great level." The surface rise toward the south in gentle rolls to an elevation of about 800 feet in the extreme southern part. In the central portion of the county is found a dark loam with clay subsoil, while in the southern part clay loam predominates. Gypsum and limestone are found in the county. The crop reports show corn, 334,218 bushels; potatoes, 290,310 bushels; oats, 649,066 bushels; wheat, 331,822 bushels; buckwheat, 117,492 bushels; barley, 55,574 bushels; dry beans, 23,589 bushels; hay and forage, 59,724 tons. The total value of all farm property is \$14,589,014, being an increase of 32 per cent. over 1900. Domestic animals reported: Dairy cows, 7,429; horses, 7,879; swine, 9,832; sheep, 15,304; poultry, 128,791; production of milk, 3,607,915 gallons valued at \$224,120.

The N. Y. C. & H. R. R. and two branches of the Lehigh Valley railroad intersect the county. In the northern part of the county an electric line passes through Seneca Falls. The Willard Insane Asylum with large and costly buildings is located at Ovid. Flour mills, malt houses and distilleries are located at Waterloo. The system of education is of the same high character demanded by the state and the needs of the rural sections are fully met by 91 district schools conveniently located. The county has 31 miles of state and county roads and 413 miles of improved highways. The agricultural organizations consist of one Pomona grange, 11 subordinate granges, county agricultural society and county beekeepers society. Seneca county is famed like many other of New York counties for the beauty of its scenery.

TOWN OF COVERT

Population 1,947

No. 977 — Farm of 100 acres; located 1½ miles from Interlaken P. O. and railway station, on line of L. V. R. R.; ¼ mile from school; 1½ miles from butter factory, milk station, Catholic and Protestant churches. Highways, good. Nearest city, Ithaca, 17 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, dark. Acres in meadow, 20; in natural pasture, 8; in timber, 5, hard maple. Acres tillable, 75. Fruit, young orchard of about 5 acres. Adapted to all crops grown in this climate. Fences, wire, good condition. House, 10 rooms, good condition. Outbuildings, good size and in good condition. Watered by well and spring. Occupied by owner. Reason for selling, death of owner's wife. Price, \$145 per acre. Address John C. Bills, Interlaken, N. Y.

TOWN OF OVID

Population 3,355

No. 978 — Farm of 80 acres; located 1 mile from Interlaken P. O., R. D. 1, and railway station, on line of L. V. R. R.; ½ mile from school; from 1 to 2 miles from Catholic and Protestant churches; 1 mile from butter factory and milk sta-

tion. Highways in good condition. This farm is 10 miles from Trumansburg and 19 miles from Ithaca, reached by rail and highway. Surface of farm, level and sloping. Soil, rich loam. Acres in meadow, 40; in natural pasture, 13; in timber, 3. Acres tillable, 70. Fruit, apples, plums, cherries, peaches, pears, grapes, red raspberries and strawberries. Best adapted to corn, wheat, potatoes, beans, hay, etc. Fences, mostly woven wire, some board, good condition. House, 15 rooms, excellent condition. Outbuildings, hay and horse barn, 76x30; cow barn and shed, 40x45; wagon house, 30x24; corn and hen house, 18x24; hog house, 13x16, all in good condition. Watered by wells. This farm is 1 mile from Cayuga Lake. Occupied by owner. Price, \$8,800. Terms, \$3,200 down, balance on mortgage at 5%. Address Mrs. L. M. Stoughton, Interlaken, N. Y.

TOWN OF SENECA FALLS

Population 7,407

No. 978½ — Farm of 160 acres; 2 miles from Seneca Falls P. O.; 2 miles from railway station at Seneca Falls; 2 miles from school, 7 churches of all denominations and milk station. Highways, good; new State road to be built. Nearest large village, Seneca Falls, popula-

tion 7,000, 2 miles distant, reached by highway. Surface of farm, level, slightly rolling. Soil, sandy loam. Acres in meadow, 60; in natural pasture, 10; in timber, 18, elm, maple and ash, very little large timber; acres tillable, 135. Fruit, 40 apple and 5 pear trees. Best adapted to all kinds of grain and hay. Fences, about 440 rods of smooth wire, balance, barbed wire, in good condition. House, old-fashioned farm house, 14 rooms, used for two families. Barn, 40x40; cow barn, 18x40; farm shop; foundation built for barn, 36x64. Watered, house and barn by well, fields by springs and brook; 3 miles from Cayuga Lake; 2 miles from Seneca river. A good dairy farm. Sand and gravel bank on farm. Occupied by tenant. Reason for selling, owner wishes to move to city. Price, \$60 per acre. Terms, \$1,000 down. Address Lillian R. Arnold, 43 Clinton street, Seneca Falls, N. Y. Owner will rent.

TOWN OF WATERLOO

Population 4,429

* No. 979 — Farm of 168 acres; located 1 mile from Waterloo P. O., R. D. 3, and railway station, on line of N. Y. C. R. R.; 1 mile from school, Catholic and Protestant churches. Highways in good condition. Surface of farm, slightly rolling. Altitude, about 400 feet. Soil, sandy and sandy loam. Acres in meadow, 30; in natural pasture, 20; in timber, 10, little value. Acres tillable, 150. Fruit, old apple orchard of about 15 trees, young apple orchard of about 40 trees. Best adapted to vegetables, oats, rye, corn, etc. Fences, mostly wire, part good, some new, some old. House, 8 rooms, furnace and gas, good condition. Outbuildings, horse and grain barn, 32x60; cow shed, 24x40; tool shed, 20x48; hennery, 10x24, good condition. Watered by well and creek. Seneca river a few rods from farm. Occupied by tenant. Reason for selling, owner a widow.

Price, \$70 per acre. Terms, cash or part cash. Address E. W. Dowden, agent, Waterloo, N. Y.

* No. 980 — Farm of 164 acres; located 2½ miles from Waterloo P. O., R. D. 5, and railway station, on line of N. Y. C. R. R.; 2 miles from school; 2½ miles from Catholic and Protestant churches. Highways, good. Surface of farm, slightly sloping. Altitude, 450 feet. Soil, dark loam and black muck. Acres in meadow, 80; in timber, 25, maple and elm. Acres tillable, 130. Fruit, apples and pears. Adapted to all crops grown in this climate. Fences, mostly wire, part good and part in fair condition. House, 10 rooms, good condition. Outbuildings, grain and hay barn, 35x60, new; also sheep barn, hog house, hen house, cow shed, horse barn and carriage house. Watered by well. Occupied by tenant. Price, \$12,000. Terms, mostly cash. Address E. W. Dowden, agent, Waterloo, N. Y.

* No. 981 — Farm of 114 acres, located 2 miles from Waterloo P. O., R. D. 4, and railway station, on line of N. Y. C. & L. V. Railways; 2 miles from school, Catholic and Protestant churches. Highways in good condition. Surface of farm, gently sloping. Altitude, 450 feet. Soil, loam, part sandy loam. Acres in meadow, 20; in natural pasture, 10; in timber, 15, chestnut, maple, etc. Acres tillable, 90. Fruit, apples, peaches and pears. Adapted to any crops grown in this climate. Fences, mostly wire, good condition. Brick house, 11 rooms, excellent condition. Outbuildings, grain barn, 30x40; hay barn, 30x40; horse barn, 20x34, new; cow shed, 20x40; hog and hen house, 18x36; new tool shed, 20x60. Watered by well and spring. Occupied by owner. Reason for selling, owner has another farm. Price, \$90 per acre. Terms, cash or part cash. Address E. W. Dowden, agent, Waterloo, N. Y.

STEBEN COUNTY

Area, 1,490 square miles. Population, 83,363. Annual precipitation, 34.97 inches. Annual mean temperature, 49.1°. Number of farms, 7,363. County seat, Bath.

This county is situated in the southwestern part of the state bordering on Pennsylvania. It is drained by the Canisteo, Conhocton and Tioga Rivers, which unite in the southeastern part of the county and form the Chemung River. Cayuga Lake forms part of its northeast boundary.

The surface is an undulating table land diversified with broad irregular hills and deep valleys. A chain of low hills extends on both sides of the valleys of the

* Indicates farm is in hands of agent or real estate dealer.

Conhocton and Canisteo Rivers and extends across the county from the northeast to the southwest. Between these elevations is a wide fertile valley. The soil on the uplands is a deep gravelly loam, while clay loam is found in the valleys and in the eastern half of the county with a subsoil of clay and lime. In the southeast corner a black loam soil is found in the valleys. Woodlands of oak, ash, pine, sugar maple, beech, chestnut and other trees cover nearly one-third of the entire area. Excellent building stone is found in the Devonian sandstone outcroppings. The county ranks first in the production of honey, second in buckwheat and fourth in sugar. Some of the principal crops are corn, 228,411 bushels; oats, 1,216,138 bushels; wheat, 168,160 bushels; buckwheat, 341,264 bushels; rye, 71,102 bushels; potatoes, 3,279,953 bushels; hay and forage, 189,482 tons. The value of all farm property is \$37,369,643, an increase of 14 per cent. since 1900. The general advance in price of New York State farms is just beginning to reach this county and the next ten years will undoubtedly mark a very decided increase. Domestic animals are reported as dairy cows, 37,599; horses, 20,506; swine, 17,740; sheep, 53,161; poultry, 296,172; production of milk, 16,430,763 gallons; this included with the products of 42 milk stations and factories in the county sold for \$1,325,568.

There are 45 miles of state and county roads and 2,862 miles of graded and improved roads, and 369 district schools with many standard high schools provide the means of education for the farmers' children. Several trunk lines intersect the county making the transportation facilities excellent and ample. The New York State Soldiers' Home is located at Bath. Corning, known as the Crystal City, is the site of extensive glass works. Hornell is a leading railroad town where many important manufactories are located. There are 38 agricultural societies in the county serving the best interests of the farmer.

TOWN OF ADDISON

Population 2,509

* No. 982 — Farm of 49½ acres; located 2 miles from Addison P. O. and railway station, on line of Erie and B. & S. Railways; 2 miles from school, milk station, Catholic and Protestant churches; 3 miles from cheese factory. Highways, good. Surface of farm, rolling. Altitude, 1,200 feet. Soil, sandy, sub-soil. Acres in meadow, 20; in natural pasture, 10; in timber, 19, pine, oak and chestnut. Acres tillable, 30. Fruit, apples and small fruit. Best adapted to hay. Fences, mostly wire, good condition. New house, 2 stories, 8 rooms. Barn, 32x44, built in 1910. Watered by springs. Reason for selling, owner has other business. Price, \$2,200. Terms, 25% down. Address W. A. Bartlett, agent, Addison, N. Y.

* No. 983 — Farm of 50 acres; located 3½ miles from Addison P. O., R. D. 1; 3½ miles from railway station at Addison, on line of Erie & B. & S. R. R.; ½ mile from school; 3½ miles from milk station, Catholic and Protestant churches; 2 miles from cheese factory. Highways, good. Surface of farm, slightly rolling. Altitude, 1,200 feet. Soil, clay. Acres in meadow, 25; in natural pasture, 20. Acres tillable, 45.

Fruit, apples, pears and plums. Best adapted to hay, grain and potatoes. Fences in fair condition. House in poor condition. Barn, 32x44, fair condition. Watered by well and springs. Price, \$2,000. Terms, easy. Address W. A. Bartlett, Addison, N. Y.

TOWN OF BATH

Population 8,554

No. 984 — Farm of 41½ acres; 3½ miles from Bath P. O.; 3½ miles from Bath railway station; 4½ miles from Savona railway station; ¾ mile from school. Soil, yellow loam and gravel soil. Acres in meadow, 29; acres pasture, 7; acres timber, 5½. House, 12x16, with wing, 8x12, not in very good condition. Barn and addition, 20x30, with shed and stable. Watered by spring and cistern. Timber land comprises a fine, thrifty grove of young white or cork pine; also from 5,000 to 8,000 feet of large sawing pine. Fences, pole and rail, in poor condition. Price, \$850. Terms, ¼ down, balance to suit purchaser. Owner will rent with option to buy. Name and address of owner, John H. Bowlby, Bath, N. Y.

No. 985 — Farm of 90 acres; located 5 miles from Kanona P. O. and railway station, on line of D., L. & W. and Erie

* Indicates farm is in hands of agent or real estate dealer.

R. R.; $\frac{1}{4}$ mile from school; 5 miles from Protestant churches; 7 miles from churches of all denominations; $1\frac{1}{2}$ miles from cheese factory; 5 miles from milk station. Nearest large village, Bath, 6 miles distant, reach by highway. Surface of farm, mostly rolling, part level. Altitude, 1,300 feet. Acres in meadow, 15; in natural pasture, 30. Acres tillable, 80. Best adapted to wheat, potatoes and oats. Fences, line fences wire. No house. Outbuildings, barn, 30x40, fair condition. Campbell creek runs through farm. Occupied by tenant. Reason for selling, owner lives too far away to attend to farm. Price, \$1,200. Terms, \$300 down, balance \$50 per year. Address James McCall, Bath, N. Y. Owner will rent.

No. 986 — Farm of 117 acres; located 4 miles from Bath P. O. and railway station, on line of Erie & H. L. & W. Railways; 1 mile from school and milk station; 4 miles from butter factory, Catholic and Protestant churches; 3 miles from cheese factory. Highways, about $1\frac{1}{2}$ miles hilly, remainder State road. Surface of farm, 30 acres hilly, 85 acres level. Altitude, about 1,500 feet. Soil, clay loam. Acres in meadow, 65; in natural pasture, 15; in timber, 20, young. Acres tillable, 85. Fruit, apples and grapes. Best adapted to potatoes, beans, hay and grains. Fences, wire and stump, in good condition. House, 7 rooms, good condition. Outbuildings, barn, 40x72, with basement, good condition. Watered by well and spring. Occupied by owners. Reason for selling, other business. Price, \$3,000. Terms, \$500 down, remainder on time. Address E. H. Dudley & Co., Bath, N. Y.

No. 987 — Farm of 150 acres; located $2\frac{1}{4}$ miles from Bath P. O., R. D. 1, and railway station, on line of D., L. & W. and Erie Railways; $1\frac{1}{2}$ miles from school; 2 miles from milk station, Catholic and Protestant churches; $3\frac{1}{2}$ miles from butter factory; 4 miles from cheese factory. Highways, good. Surface of farm, level. Altitude, 1,000 feet. Soil, loam, gravel and muck. Acres in meadow, 50; in natural pasture, 40; in timber, 7, hemlock, pine, chestnut, etc. Acres tillable, 90. Fruit, apples. Best adapted to wheat, rye, oats, barley, corn, tobacco and garden crops. House, 20x26,

with wing, 18x24, and wing, 10x12, concrete porch, new; also tenant house. Outbuildings, barn, 30x62; barn, 20x44; barn, 14x20; silo, concrete stable, 26x34, new; barn, 38x70. Watered by well, windmill and two trout streams. Occupied by tenant. Reason for selling, owner in other business and cannot attend to farm. Price, \$13,750. Terms, $\frac{1}{4}$ cash, balance to suit purchaser. Address Mrs. Helene Bowlby, Bath, N. Y.

TOWN OF BRADFORD

• Population 613

* No. 988 — Farm of 103 acres; located $3\frac{1}{2}$ miles from Bradford P. O., R. D. 3; 7 miles from railway station at Savona, on line of D., L. W. and Erie R. R.; 1 mile from school; $3\frac{1}{2}$ miles from Protestant churches; 7 miles from milk condensing plant, cream wagon passes door. Highways, good. Nearest city, Corning, 16 miles distant, reached by highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 40; in natural pasture, 40; in timber, 12, hard wood. Acres tillable, 85. Best adapted to oats, buckwheat, rye and potatoes. Fences in fair condition. House, good condition. Outbuildings, barn in fair condition, 2 sheds. Watered, house and barn by well; fields, by springs. Unoccupied. Reason for selling, advanced age of owner who lives too far away to attend to place. Price, \$3,500. Terms, $\frac{1}{2}$ down. Address H. P. Zimmerman, agent, Savona, N. Y., R. D. 1.

* No. 989 — Farm of 160 acres; located $\frac{1}{4}$ mile from Bradford P. O., R. D. No. 1; 9 miles from railway station at Savona, on line of D., L. & W. and Erie R. R.; $\frac{1}{4}$ mile from school and Protestant churches; 9 miles from butter factory; $2\frac{1}{2}$ miles from cheese factory. Highways, good. State road expected next year. Surface of farm, level. Soil, gravel and muck. Acres in meadow, 60; in natural pasture, 25; in timber, 30. Acres tillable, 125. Fruit, apples. Best adapted to corn, wheat, rye, oats and buckwheat. Fences, stump. House, 18 rooms, good condition. Outbuildings in fair condition. Watered by well and springs. Reason for selling, to close an estate. Price, \$6,000. Terms, cash. Address Anna M. Zimmerman, agent, Bradford, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF CAMERON

Population 1,068

*No. 990—Farm of 140 acres; 5 miles from Cameron Mills P. O., R. D. 2, and railway station, on line of Erie R. R.; $\frac{1}{2}$ mile from school, churches and cheese factory. Highways, somewhat hilly. Nearest city, Hornell, 18 miles distant; Corning, 20 miles distant, reached by rail. Surface, hilly. Soil, good. Acres in meadow, 45; in natural pasture, 20; in timber, 20, maple and beech; acres tillable, 100; 50 apple trees and 5 cherry trees. Best adapted to hay, oats, potatoes, corn, dairying and sheep raising. Fences, board and wire, in good condition. Large house, painted white, well built, needs slight repairs to porch. One large barn, 2 sheds and straw house attached; dry yard, east exposure; horse and wagon barn; horse and cow barn; hog and corn house. Watered by well; fields, by springs and stream. House is protected from west winds by woods a few rods distant. Reason for selling, to settle estate. Price, \$25 per acre. Terms, $\frac{1}{2}$ cash, balance on time to suit purchaser. Address M. R. Sanford, 1029 Madison street, Syracuse, N. Y. Owner will rent.

No. 991—Farm of 150 acres; located 4 miles from Cameron P. O. and railway station, on line of Erie R. R.; 1 mile from school, cheese factory and Methodist church. Highways, good. Surface of farm, level. Altitude, 1,800 feet. Soil, clay loam. Acres in meadow, 90; in natural pasture, 20; in timber, 30, young, hardwood. Acres tillable, 100. Fruit, apples. Best adapted to potatoes, hay, grain and beans. Fences, mostly wire, fair condition. House, 10 rooms, good condition. Outbuildings, hay and grain barn, 30x40; horse and cow barn, 24x36, with shed attached, good condition. Watered by spring and creek. Occupied by owners. Reason for selling, other business. Price, \$5,250. Terms, \$1,000 cash, balance on time. Address E. H. Dudley & Co., Bath, N. Y.

No. 992—Farm of 300 acres; located 4 miles from Cameron P. O. and railway station, on line of Erie R. R.; $\frac{1}{2}$ mile from school, cheese factory and Methodist church. Highways, good. Nearest city, Hornell, 15 miles distant, reached by highway. Surface of farm,

level. Altitude, 1,800 feet. Soil, clay loam. Acres in natural pasture, 40; in timber, 80, young, mostly chestnut. Acres tillable, 200. Fruit, apples. Best adapted to potatoes, hay, grain and beans. Fences, wire and stump, good condition. House, large, stone, 15 rooms, good condition. Outbuildings, grain and horse barn, 40x72; cow barn, 30x40; hay barn, 30x50; shed, 30x60 and 24x50; hen house and hog house, all in good condition. Watered by well, springs and creek. Occupied by tenant. Reason for selling, other business. Price, \$10,500. Terms, \$2,500 cash, balance on time. Address E. H. Dudley & Co., Bath, N. Y.

TOWN OF CAMPBELL

Population 1,204

No. 993—Farm of 80 acres; 3 miles from Campbell P. O., and railway station, on line of Erie R. R. and D., L. & W. R. R.; 3 miles from school, churches and butter factory. Highways, hilly. Nearest city, Corning, population 14,000, 10 miles distant. Surface, rolling. Soil, gravelly. Acres in meadow, 40; some timber, pine and chestnut. Fruit, apples. Best adapted to corn, potatoes, oats and buckwheat. Fences, poor. No house. Fair-sized barn. Watered by well. Unoccupied. Reason for selling, to close estate. Price, \$1,000. Terms, \$200 down, balance \$150 each year. Owner will rent on shares or for 1 year with option to buy. Address Estate of Geo. R. Sutherland, Campbell, N. Y.

TOWN OF CANISTEO

Population 3,441

No. 994—Farm of 109 acres; located 1 mile from P. O., 4 miles from railway station at Cameron, on line of Erie Ry.; $\frac{3}{4}$ mile from school; 1 mile from church. Highways, somewhat hilly, but good. Nearest city, Hornell, 13 miles distant, reached by rail and highway. Surface of farm, level and sloping. Acres in meadow, 10. No buildings. Price, \$7 per acre. Terms, $\frac{1}{2}$ down but prefer cash. Address M. E. Brady, Elmira, N. Y., R. D. No. 2. Owner will rent.

TOWN OF CATON

Population 1,078

No. 995—Farm of 128 acres; located 7 miles from Corning P. O., R. D. 1; 7 miles from railway station at Corning,

* Indicates farm is in hands of agent or real estate dealer.

on line of Erie, Lackawanna and N. Y. C. Rys.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches, butter factory and cheese factory; 5 miles from milk station and milk condensing plant. Highways, somewhat hilly, but good. Surface of farm, mostly level. Altitude about 1,400 feet. Soil, clay loam. Acres in meadow, 70; in natural pasture, 45; in timber, 10, fine sugar bush. Acres tillable, 95. Fruit, apples. Best adapted to hay, oats, buckwheat and corn. Fences, wire, good condition. House, new, 6 rooms with fine cellar, good condition. Outbuildings: barn, 36x86, concrete floor in cow stable, large silo, hay barn, 36x40 and granary, 10x12. Watered, house and barn by well; fields, by springs. Occupied by tenant. Reason for selling, owner resides in city and is not a farmer. Price, \$3,500. Terms, at least \$300 down, remainder \$200 with interest yearly. Address Amelia E. Hotchkiss, c/o Turner & Turner, Elmira, N. Y. Owner will rent.

No. 996 — Farm of 80 acres; located 5 miles from Seeley Creek P. O., R. D. No. 1 and railway station, on line of Erie R. R.; $\frac{3}{4}$ mile from school; $3\frac{1}{2}$ miles, from cheese factory and Protestant churches; 2 miles from butter factory; 5 miles from milk station and milk condensing plant. Highways, good. Nearest city, Elmira, 12 miles distant, reached by highway. Surface of farm, somewhat hilly. Altitude, 1,500 feet. Soil, clay, hard pan, some alluvial. Acres in meadow, 35; in natural pasture, 35; in timber, 10. Acres tillable, 75. Fruit, apples, plums, pears, grapes, etc. Best adapted to corn, oats, buckwheat, potatoes and hay. Fences, wire, fair condition. Two houses, one 9 rooms, good condition; one 8 rooms, needs some repairs. Outbuildings: barn, 26x52, with cow shed, stable and straw shed; barn, 32x32 with basement, good condition. Watered, house by running water; barns, by springs in yard. A small creek about 15 rods from house, never dry. Unoccupied. Reason for selling, owner has another farm. Price, \$2,400. Terms, easy. Address Geo H. Knight, Corning, N. Y., R. D. No. 2.

TOWN OF HORNBY Population 870

No. 997 — Farm of 28 acres; 5 miles from Beaver Dams P. O., R. D. 3; 5 miles from railway station at Beaver

Dams, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and church; 7 miles from butter factory; 40 rods from cheese factory. Highways, good. Nearest city, Corning, population about 14,000, 7 miles distant, reached by highway. Altitude, 1,550 feet. Soil, clay subsoil. Acres in meadow, 8; in natural pasture, 14; in timber, 6, maple, ash and hemlock; acres tillable, 15. Fruit, apples and pears. Best adapted to hay and grain. Fences, rail, wire and board. House, 12 rooms, fair condition. Barn, 26x24, fair condition. Watered, house, by well; barn and fields, by spring. This farm is located 3 miles from Hornby Lake. Occupied by owner. Reason for selling, owner has more land than he can attend to. This would make a fine poultry farm and keep a horse and 2 cows. Price, \$1,000. Terms, \$500 down, balance on easy terms. Address E. J. Easterbrook, Beaver Dams, N. Y., R. D. 3.

No. 998 — Farm of 160 acres; located 6 miles from Corning P. O., R. D. 5; 1 mile from railway station at Ferenbaugh, on line of N. Y. C. & H. R. Ry.; $\frac{1}{2}$ mile from school; 6 miles from churches. Highways, good. Surface of farm, $\frac{1}{2}$ level, remainder somewhat hilly. Soil, gravel and loam. Acres in meadow, 40; in natural pasture, 20. Acres tillable, 130. Fruit, apples, plums and pears. Best adapted to corn, wheat, oats, buckwheat, potatoes, etc. Fences, stump, stone and woven wire. House, large, fair condition. Outbuildings: grain barn, 32x80, basement, straw shed and cow stable, 24x40; wagon house, 22x35; hen house, etc. Watered, house and barn by water piped from spring; fields, by creek. Reason for selling, to close an estate. Price, \$4,500. Terms, \$3,000 cash, balance on mortgage at 6%. Address Samuel Oldfield, 73 Sterling street, Corning, N. Y.

TOWN OF LINDLEY Population 1,153

No. 999 — Farm of 226 acres; located 2 miles from Lindley P. O., R. D. 2; $2\frac{1}{2}$ miles from railway station at Lindley, on line of N. Y. C. Ry.; $\frac{3}{4}$ mile from school; $1\frac{3}{4}$ miles from M. E. church; 2 miles from cheese factory; $2\frac{1}{2}$ miles from milk station. Highways in fair condition. Nearest city Corning, 13 miles distant, reached by rail and highway. Surface of farm, some hilly

and some level. Altitude, 1,224 feet. Soil, clay and sandy loam. Acres in meadow, 60; in natural pasture, 60; in timber, 40, pine and oak. Acres tillable, 150. Fruit, 14 apple and 3 pear trees. Best adapted to hay, potatoes and spring grain. Fences, wire and stump, good. House, 12 rooms, first-class condition. Outbuilding: barn, 32x72, first-class condition. Watered, house by well; barn and fields, by running water. Occupied by owner. Reason for selling, to close an estate. Price, \$4,500. Terms, \$3,000 cash. Address J. J. Driscoll, Lindley, N. Y.

No. 1000 — Farm of 226 acres; located 2 miles from Lindley P. O., R. D. No. 2 and railway station, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school; $1\frac{1}{4}$ miles from Methodist church; 2 miles from cheese factory; $2\frac{1}{2}$ miles from milk station. Highways, good. Nearest city, Corning, 13 miles distant, reached by rail and highway. Surface of farm, rolling and level. Altitude, 1,220 feet. Soil, clay and sandy loam. Acres in meadow, 60; in natural pasture, 60; in timber, 40, oak and pine. Acres tillable, 150. Fruit, apples and pears. Best adapted to hay, potatoes, oats, corn and wheat. Fences, wire and stump. House, 12 rooms, good condition. Barn, 32x72, good condition. Watered, by well and spring. Occupied by owner. Reason for selling, to close an estate. Price, \$4,500. Terms, \$3,000 down. Address J. J. Driscoll, Lindley, N. Y.

No. 1001 — Farm of 50 acres; located 2 miles from Presho P. O., R. D. No. 2 and railway station, on line of N. Y. C. & H. R. R. R.; 1 mile from school; 2 miles from cheese factory and Methodist church. Highways, good. Nearest city, Corning, 10 miles distant, reached by rail and highway. Surface of farm, rolling. Altitude, 1,050 feet. Soil, 6 acres river bottom. Acres in meadow, 8; in natural pasture, 20; in timber, 16, hard wood and pine. Acres tillable, 30. Fruit, apples, pears and plums. Best adapted to hay, tobacco, oats, corn, wheat and potatoes. Fences, mostly wire, poor condition. House, 8 rooms, good condition. Outbuildings, hen house,

pig pen, corn crib and barn, 32x44, with basement. Watered by springs. Occupied by owner. Reason for selling, owner unable to work farm. Price, \$1,200. Terms, $\frac{1}{2}$ cash, balance to suit purchaser. Address John Smith, Lindley, N. Y.

TOWN OF TROUPSBURG

Population 1,712

No. 1002 — Farm of 115 acres; located on R. F. D.; 9 miles from railway station at Knoxville, on line of N. Y. C. R. R.; 2 miles from school, Protestant churches and cheese factory; 8 miles from butter factory and milk station. Highways, good. Nearest large village, Troupsburg, reached by highway. Surface of farm, mostly side hill. Good soil. Acres in meadow, 50; in natural pasture, 40; in timber, 20, hard wood. Acres tillable, 90. Fruit, pears, plums, apples and cherries. Best adapted to hay, oats, barley, buckwheat, etc. Fences, barbed wire. House 12 rooms, fair condition. Outbuildings: barn, 42x50; granary, 12x20. Watered by well and creek. Occupied by owner. Reason for selling, advanced age of owner. Price, \$40 per acre. Terms, small payment down, balance on time. Address C. Wilkinson, Knoxville, Pa. Owner will rent.

TOWN OF TUSCARORA

Population 1,006

* No. 1003 — Farm of 105 acres; located 3 miles from Addison P. O. and railway station, on line of Erie and B. & S. Railways; $1\frac{1}{4}$ miles from school; 3 miles from milk station, butter factory, Catholic and Protestant churches. Highways, good. Surface of farm, rolling. Altitude, 1,200 feet. Soil, gravel. Acres in meadow, 50; in natural pasture, 35; in timber, 20, pine, hemlock and basswood. Acres tillable, 85. Fruit, apples, plums and cherries. Best adapted to hay, grain and potatoes. House, $1\frac{1}{2}$ stories, 5 rooms, fair condition. Outbuildings: barn, 30x40, good condition, granary, 24x40. Watered, by well and spring. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,400. Address W. A. Bartlett, agent, Addison, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF URBANA

Population 2,659

No. 1004 — Farm of 102 acres; 4 miles from Hammondsport P. O. and railway station, on line of B. & H. R. R.; R. D. 4 from Hammondsport. Highways, good. Soil, mostly gravelly loam, clay subsoil. Acres in meadow, 40; tillable, 90; natural pasture, 20; timber, 8, maple, oak and chestnut, second growth. Fruit, 60 apple trees, some plums and cherries. Adapted to oats, corn, barley and buckwheat. Fences, wire and rail, in fair condition. Large house, in good condition. Barns: grain barn, 30x40, sheds attached; wagon house, 26x36; tool house, 20x24; hog and poultry house. Watered, house by well and cistern; barn, by well; fields, by springs. Reasons for selling, owner engaged in other business. Price, \$3,000. Terms, $\frac{1}{2}$ down, balance on time. Owner will rent. Name and address of owner, Fred W. Locke, Hammondsport, N. Y.

TOWN OF WAYNE

Population 643

No. 1005 — Farm of 88 acres; located 3 miles from Hammondsport P. O., R. D. 4; 3 miles from railway station at Hammondsport, on line of Erie Ry.; $\frac{1}{2}$ mile from school and Protestant churches. Highways, good. Surface of farm, gently rolling. Soil, clay loam. Acres in timber, 18, white and red oak, ash, hickory and maple. Acres tillable, 60. Fruit, apple orchard and some cherry trees. Best adapted to hay, grain, potatoes, corn and fruit. Fruit, apples, pears and cherries, also a few grape vines. House, good size, poor condition. Outbuildings: barn, 36x40; barn, 30x40; 2 sheds, all need repairs. Watered by well and springs. Unoccupied. Reason for selling, owner lives in California. Price, \$1,800. Terms, cash. Address Frank Crawford, 3228 East 4th street, Los Angeles, California.

SUFFOLK COUNTY

Area, 720 square miles. Population, 96,138. Annual precipitation, 60.2 inches. Annual mean temperature, 51.3°. Number of farms, 2,491. County seat, Riverhead.

This comprises the middle and eastern part of Long Island and is the extreme southeastern county of New York State. The waters of Long Island Sound border its north shore with the Atlantic Ocean on its southern side. The coast is deeply indented by inlets and bays, which afford good harbors.

The surface along the south shore is very flat and only about fifty feet above sea level. Extending across the county north and south from Smithtown Bay to Great South Bay is a level valley averaging about four miles wide. These level tracts all have fertile sandy loam soil. The northeastern portion rises in gentle slopes to about 300 feet above sea level and the soil is a clay and gravelly loam. From Smithtown Bay east along the north shore is a ridge of hills extending to the extreme end of the county, while to the south it is paralleled by a low broad upland, the soil being gravelly loam. Between these ridges is an interval of level land, with fertile sandy loam. The surface is extensively covered with forests. There is, however, very little commercial timber to be found.

The leading crops are corn, 743,721 bushels; oats, 61,257 bushels; wheat, 87,812 bushels; rye, 29,702 bushels; potatoes, 2,200,187 bushels; hay and forage, 22,011 tons. Because of the short distance from this county to New York City much of the land is planted in garden truck and hundreds of farmers are engaged in this particular kind of farming. Along the south shore are found large duck and poultry farms, several of which market more than 100,000 ducks annually. Cranberries are also very extensively grown. The value of all farm property is \$33,537,021, an increase of 41.6 per cent. The average price of improved land is \$172.50, showing a gain of \$68.15 per acre over that shown by the census of 1900. This rise in value is largely caused by its proximity to New York City and by the rapid development of the poultry and vegetable business. Dairy cows reported, 5,996; horses, 6,347; swine, 9,945; sheep, 3,347; poultry, 305,844; product of milk, 2,794,136 gallons, total value of the same being \$276,676. The county contains 129 district schools, has 57 miles of state and county roads and 1,462 miles of other improved highway. It is intersected by the Long Island and South Side railroads and electric lines in the extreme western part. The agricultural organizations comprise 3 granges, the Long Island potato exchange, farmers' agricultural association, a county agricultural society, a farmers' club and the Huntington Horticultural and Agricultural Society.

TOWN OF BABYLON

Population 9,030

* No. 1006 — Farm of 45 acres; $1\frac{1}{2}$ miles from Babylon P. O.; $1\frac{1}{4}$ miles from Babylon railway station, on line of L. I. R. R.; $1\frac{1}{4}$ miles from school; $1\frac{1}{2}$ miles from churches. Nearest city, New York, about 20 miles distant, reached by highway. Surface of farm, level. Soil, heavy loam. Acres in natural pasture, 20; in timber, 5, pine, oak and chestnut. Fruit, apples, peaches and pears. Best adapted to potatoes, corn, hay and all other crops suited to this locality. Fences, picket and rail. House, large, fine condition. Large barn, good condition. Watered, house and barns, by pumps. Small lake on property. Occupied by owner. Price, \$25,000. Terms, $\frac{1}{2}$ cash. Address Henry Oakley, agent, Babylon, L. I., N. Y.

* No. 1007 — Farm of 7 acres; $1\frac{1}{2}$ miles from Babylon P. O.; $\frac{1}{2}$ mile from Babylon railway station, on line of L. I. R. R.; $\frac{1}{2}$ mile from school; $1\frac{1}{2}$ miles from churches and milk station. Nearest large village, Babylon, population about 4,000, reached by highway. Surface of farm, level. Soil, loam. Acres tillable, 6. Fruit, peaches, apples and pears. Best adapted to truck gardening. House, 7 rooms. Good outbuildings. House, watered by pump. Occupied by owner. Reason for selling, owner in other business. Price, \$5,000. Terms, \$1,000 cash. Address Henry Oakley, agent, Babylon, L. I., N. Y.

* No. 1008 — Farm of 102 acres; 1 mile from Deer Park P. O. and railway station, on line of L. I. R. R.; $\frac{1}{4}$ mile from school and Methodist church; 1 mile from milk station. Highways, level and good. Nearest city, New York, reached by highway. Surface of farm, part level and part rolling. Soil, good, heavy loam, underlined with gravel. Acres in natural pasture, 50; in timber, 72, oak, chestnut, walnut and hickory; acres tillable, 50. Fruit, apples, pears, peaches, quinces, cherries and plums. Best adapted to potatoes, corn, cabbage and fruits. Fences, in good condition. Large house, in good condition. Large barn, in good condition. Watered by springs. Reason for selling, owner

has other interests. Price, \$25,000. Terms, to suit purchaser. Address Henry Oakley, agent, Babylon, L. I., N. Y.

* No. 1009 — Farm of 32 acres; located 3 miles from Babylon P. O., $2\frac{3}{4}$ miles from railway station at Babylon, on line of L. I. Ry.; $2\frac{1}{4}$ miles from school; 3 miles from churches. Surface of farm, level. Soil, loam. Acres in timber, 6, pine, oak and chestnut. Acres tillable, 26. Best adapted to corn, potatoes, etc. No buildings. Price, \$10,000. Terms, $\frac{1}{2}$ cash. Address Henry Oakley, agent, Babylon, L. I., N. Y.

* No. 1010 — Farm of 45 acres; located $\frac{1}{4}$ mile from Lindenhurst P. O. and railway station, on line of L. I. R. R.; $\frac{1}{4}$ mile from school and Protestant churches. Highways, State road. Surface of farm level. Soil, loam. Acres in natural pasture, 40. Acres tillable, 40. Fruit, apples, pears, peaches, grapes, cherries and plums. Adapted to any crops grown in this climate. Fences in good condition. House, 17 rooms, good condition, also 6-room cottage. Outbuildings, large. Village water. Occupied by tenant. Price, \$40,000. Terms, \$5,000 cash, balance on mortgage. Address Henry Oakley, agent, Babylon, N. Y. Owner will rent.

No. 1011 — Farm of 65 acres; located $\frac{1}{2}$ mile from Central Islip P. O. and railway station, on main line of L. I. R. R.; $\frac{1}{2}$ mile from school, churches and milk station. Highways, State road. Nearest large village, Islip, 4 miles distant, reached by highway. Surface of farm, level. Altitude about 100 feet. Soil, loam. Acres in natural pasture, 65. Acres tillable, 60. Fruit of all kinds. Adapted to any crop grown in this climate. Fences in excellent condition. House in excellent condition. Outbuildings, barn which cost about \$12,000, all other outbuildings in first-class condition. Good water. Occupied by owner. Reason for selling, owner does not want so large a farm. Price, \$40,000. Terms to suit purchaser. Address Henry Oakley, agent, Babylon, N. Y.

No. 1012 — Farm of 16 acres; located $\frac{3}{4}$ mile from Babylon P. O. and railway station, on line of L. I. R. R.; $\frac{1}{4}$ mile

* Indicates farm is in hands of agent or real estate dealer.

from school; $\frac{3}{4}$ mile from Catholic and Protestant churches. Highways, good. Surface of farm, level. Soil, loam. Acres tillable, 12. Fruit of all kinds. Adapted to any crop grown in this climate. Fences in good condition. House, large, all improvements. Outbuildings in good condition. Good water. Reason for selling, owner a widow. Price, \$22,500. Terms, easy. Address Henry Oakley, agent, Babylon, N. Y. Owner will rent.

TOWN OF BROOKHAVEN
Population 16,737

No. 1013 — Farm of 195 acres; located 2 miles from Eastport P. O. and railway station, on line of L. I. R. R.; $2\frac{1}{4}$ miles from school. Highways in good condition. Surface of farm, rolling, level and hilly. Altitude, about 125 feet. Soil, heavy loam, sandy and gravelly loam. Acres in timber, 150. Acres tillable, 45. Fruit, apples, peaches, pears, quinces, plums, etc. Best adapted to potatoes, cauliflower and general crops. No fences. House, large old homestead, built 1800. Outbuildings: large barn, hen house, corn crib, tool house, root cellar, pig pen, all old but useful. Watered by well and cistern. Farm has frontage on river. Reason for selling, owner has other business. Price \$65 per acre. Terms, $\frac{1}{3}$ or more cash. Photos sent upon request. Address Robt. W. Olson, Eastport, L. I., N. Y., Box 42.

No. 1014 — Farm of 14 acres; located $\frac{1}{8}$ mile from East Setauket P. O.; $\frac{3}{8}$ mile from railway station at Setauket, on line of L. I. R. R.; $\frac{1}{16}$ mile from school; $\frac{1}{8}$ mile from churches; $\frac{3}{8}$ mile from milk station. Highways, gravel. Nearest large village, Port Jefferson, $1\frac{1}{4}$ miles distant, reached by rail and highway. Surface of farm, rolling. Soil, loam. Acres in natural pasture, 2; in timber, 1; locust, hickory, etc. Acres tillable, 10. Fruit, peaches, apples, pears, etc. Best adapted to truck farming. Fences, wire, good. Two houses, 1 of 6 rooms and 1 of 9 rooms, good condition. Outbuildings, barn, 20x30; poultry house, 15x50; corn crib, etc., all in good condition. Watered by springs. This farm is $1\frac{1}{2}$ miles from Long Island Sound; $\frac{1}{8}$ mile from Port Jefferson Bay;

good bathing. Occupied by owner. Price, \$8,500. Terms, \$2,000 cash. Address C. W. Ryder, East Setauket, L. I., N. Y. Owner will rent.

* No. 1015 — Farm of 114 acres; located 3 miles from East Moriches P. O.; $2\frac{1}{4}$ miles from railway station at East Moriches, on line of L. I. R. R.; $3\frac{1}{4}$ miles from school; 3 miles from Protestant churches. Highway in good condition. Surface of farm, rolling. Soil, sandy loam. Best adapted to truck gardening, poultry and fruit raising. No buildings. Reason for selling, owner a widow and cannot attend to farm. Price, \$85 per acre. Terms, $\frac{3}{4}$ cash. Address C. W. Hek, agent, Southampton, L. I., N. Y., Box 135.

TOWN OF HUNTINGTON
Population 12,004

* No. 1016 — Farm of 78 $\frac{1}{2}$ acres; located 1 mile from Melville P. O.; 2 miles from railway station at Farmington, on line of L. I. R. R.; $4\frac{1}{2}$ miles from railway station at Huntington; 1 mile from school; $\frac{1}{2}$ mile from churches. Highways, good condition. This farm is 15 miles from city line of New York. Surface of farm, level. Altitude, about 80 feet. Soil, rich loam. Acres in timber, 15, heavy. Acres tillable, 63. Best adapted to truck gardening. House, 10 rooms, fair condition. One large barn, fair condition. Watered by pump. Price, \$400 per acre. Terms, $\frac{1}{2}$ cash. The trolley from Huntington to Amityville runs directly through this farm. Address Windsor Realty Co., 233 Broadway, New York, N. Y.

TOWN OF RIVERHEAD
Population 5,345

* No. 1017 — Farm of 35 acres; 5 miles from Riverhead P. O., R. D.; 4 miles from railway station at Aquebogue, on line of L. I. R. R.; $\frac{1}{2}$ mile from school and churches. Highways, good. Surface of farm, rolling. Soil, loam, 5 acres of timber; acres tillable, 30. Best adapted to potatoes and cauliflower. Fences, rail. House, 8 rooms, fair condition. Barns in fair condition. Watered by cistern. Occupied by tenant. Long Island Sound adjacent to farm. Price, \$9,000. Terms, $\frac{1}{2}$ cash. Address Dugan Brothers, agents, Riverhead, N. Y.

* Indicates farm is in hands of agent or real estate dealer.

* No. 1018—Farm of 78 acres; 5 miles from Riverhead P. O., R. D.; 4 miles from railway station at Aquabogue, on line of L. I. R. R.; $\frac{1}{4}$ mile from school and church. Highways, good. Surface of farm, rolling. Soil, loam, good. Acres in timber, 24, mostly oak; acres tillable, 54. Best adapted to potatoes and cauliflower. Fences, rail. House, 7 rooms, fair condition. Barn in fair condition. Watered by cistern. Occupied by tenant. Price, \$225 per acre. Terms, $\frac{1}{2}$ cash. Address Dugan Bros., agents, Riverhead, N. Y.

TOWN OF SMITHTOWN
Population 7,073

No. 1019—Farm of 83 acres; located $1\frac{1}{2}$ miles from Kings Park P. O. and railway station, on line of L. I. R. R.; $1\frac{1}{2}$ miles from school; 1 mile from Catholic and Protestant churches. Highways, good. Nearest large village, Northport, 3 miles distant, reached by highway. Surface of farm, level. Altitude, 150 feet. Soil, heavy loam. Acres tillable, 83. Fruit, apples, pears and cherries. Adapted to all farm crops grown in this climate. Fences in fair condition. House, 30x40. Large barns and outbuildings. Watered by well. Occupied by tenant. Price, \$275 per acre. Terms, part cash. Address W. B. Codling, Northport, N. Y.

No. 1020—Farm of 134 acres; located 1 mile from Kings Park P. O. and railway station, on line of L. I. R. R.; 1 mile from school, Catholic and Protestant churches. Nearest large village, Northport, 4 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 50 feet. Soil, gravelly loam. Acres in timber, 90, oak, chestnut and locust. Acres tillable, 40. Some fruit. Adapted to general farming.

Fences in fair condition. Small house. No barns. Occupied by owner. Price, \$200 per acre. Address Edgar T. Smith, Kings Park, N. Y.

* No. 1021—Farm of 250 acres; located 2 miles from Hauppauge P. O.; 3 miles from railway station at Smithtown, on line of L. I. R. R.; 2 miles from school and churches. Surface of farm, rolling and level. Soil, gravel loam. Acres in natural pasture, 10; in timber, 180, chestnut, oak, cedar and locust. Acres tillable, 60. Fruit, 3,500 peach trees, also apples, plums, pears, quinces and cherries. Adapted to corn, potatoes, etc. Fences, rail. House, 7 large rooms, open fireplace, fair condition. Outbuildings, barn, shed and poultry house. Occupied by tenant. Price, \$175 per acre. Teams, reasonable. Address Henry S. Mott, agent, Northport, L. I., N. Y. Owner will rent.

TOWN OF SOUTHDOLD
Population 10,577

* No. 1022—Farm of 20 acres; located 1 mile from Peconic P. O. and railway station, on line of L. I. R. R.; $1\frac{1}{2}$ miles from school, Catholic and Protestant churches. Highways, good. Nearest large village, Southold, $1\frac{1}{2}$ miles distant, reached by highway. Surface of farm, level. Soil, most good. Acres tillable, 19. Fruit, 15 apple trees. Best adapted to potatoes, corn and cauliflower. Fences, line fence, rail. House, 9 rooms, large, good condition. Outbuildings, large barn, hen house, corn crib, hog pen and wagon shed, poor condition. House and barn watered by pump. Unoccupied. Reason for selling, to close an estate. Price, \$8,000. Terms, cash or part cash. Address Fred K. Terry, agent, Southold, N. Y.

SULLIVAN COUNTY

Area, 911 square miles. Population 33,808. Annual precipitation, 37.6 inches. Annual mean temperature, 46.3°. Number of farms, 3,851. County seat, Monticello.

This county is located in the southeastern part of the state bordered on the south by Pennsylvania, on the west and southwest by the Delaware River and is drained by the Mongaup, Neversink, Beaverkill and Shawangunk Rivers, Rondout Creek and two branches of Callicoon Creek.

The surface is hilly with a constantly increasing elevation from 1,000 feet in the southern part to 2,400 feet in the extreme north of the county above tide water. It is extensively covered with forests of ash, beech, birch, maple, chestnut, oak and pine. Red sandstone underlies a large part of the surface and bluestone is

* Indicates farm is in hands of agent or real estate dealer.

largely quarried and shipped for flagging, paving, etc. The soil in the north and central sections is largely a formation of red shale. In the southern half of the county it is more rolling and clay and gravelly loam well adapted for grain growing are found. As a whole the soil is quite productive and adapted to pasturage and general farming.

The county produced corn, 146,600 bushels; oats, 138,200 bushels; buckwheat, 96,033 bushels; rye, 23,532 bushels; potatoes, 259,461 bushels; hay and forage, 62,200 tons. Total value of all farm property is \$19,628,466, an increase of 57.4 per cent. in the last ten years. It is noted that even with this great gain the buildings in the county are still worth on an average \$7 per acre more than the land itself. We know of no other state where the land is still fertile as it is in this county in which this condition is found. Domestic animals reported are dairy cows, 21,230; horses, 7,215; swine, 7,462; sheep, 6,558; poultry, 200,742; production of milk, 8,555,690 gallons, the total value of which was \$683,025. The county is intersected by the N. Y., O. & W. railroad and by the Delaware & Hudson Canal. A branch of the Erie railroad extends from Port Jervis to Monticello. In the central part of the county among the highlands are located many excellent sanitariums and the benefit received seems to be equal to that afforded by the Adirondack regions. The climate is not nearly as cold as in the Adirondacks. The water is noted for its purity and clearness. There are 174 district schools in the county and an excellent academy is located at Monticello with high and graded schools in the villages. The county contains 35 miles of state and county roads and 1,695 of other improved highways, 32 milk stations and factories are conveniently located in the county and its agricultural organizations consist of one county agricultural society, two granges, six Hebrew farmers' associations, a farmers' club and a farm and garden club.

TOWN OF CALLICOON

Population 2,026

No. 1023—Farm of 55 acres; located 2 miles from Jeffersonville P. O.; 10 miles from railway station at Callicoon, on line of Erie Ry.; ½ mile from school; 2 miles from churches and butter factory. Highways, good. Surface of farm, rolling and hilly. Altitude, 1,400 feet. Best adapted to hay, corn and oats. Fences, stone and wire. House, accommodates 40 boarders, good condition. Outbuildings in good condition. Occupied by owner. Reason for selling, advanced age of owner. Price, \$5,500, including stock and furniture. Terms, \$3,500 cash, balance on mortgage at 5%. Address Chas. Schmidt, Jeffersonville, N. Y.

TOWN OF COCHECTON

Population 1,142

No. 1024—Farm of 350 acres, in western part of Sullivan county, on the Ten Mile River; 6 miles from the railway station at Narrowsburg, on the Erie R. R. main line; 123 miles from New York city. This property is located on the main road and cross road at Cochection Center, which is in the direct line of the proposed State road, 2 miles from Lake Huntington, a beautiful summer resort. There is a daily stage service, carrying the mail to and from Narrowsburg, which has a post office, general store, school and blacksmith shop.

Acres tillable and in pasture, 150; balance, woodland, second growth white pine, hemlock, birch, beech, maple, about 100,000 feet of lumber, consisting chiefly of pine and hemlock, and about 300 cords of poplar. Fine trout stream running through property. About 300 yards east of house is an artificial lake, formed by a dam built across the Ten Mile River; this lake is well stocked with pickerel and has an area of about 25 acres; dam has heavy wall, 16 feet through, and faced with about 1 foot of concrete; affords good water power. On the west shore of lake is a beautiful pine grove, good hunting ground for small game such as rabbits and partridges. House, 15 rooms, good condition. Outbuildings: barn, 30x60, with concrete basement; stable for horses and cattle; barn, 36x64, used for storing hay and grain; blacksmith shop and work shop, 20x40; wood and coal house, 16x18, with sleeping room above; hen house, 16x41, with concrete floor. There is a spring on the hillside, with elevation enough to have running water in both house and barn. Reason for selling, death of owner's wife. Price for whole farm, \$15,000. This price includes horses, cattle, chickens, pigs, wagons, sleighs, harness, all farm machinery and tools. Owner will divide property and sell 325 acres, consisting of barns, stream, lake and woodland, for \$10,000. Address R. B. Heinle, Cochection Center, N. Y.

TOWN OF DELAWARE

Population 1,842

No. 1025 — Farm of 50 acres; 6 miles from Callicoon P. O., R. D.; 1 mile from railway station, on line of Erie R. R.; 1 mile from school; $2\frac{1}{2}$ miles from churches; $1\frac{1}{2}$ miles from cheese factory. Highways, State road. Nearest village, Jeffersonville, population 800, 2 miles distant. Surface, rolling. Soil, good. Acres in meadow, 15; natural pasture, 10; timber, 5; acres tillable, 20. Fruit, about 80 apple trees, some pear trees, 15 grapevines. Best adapted to oats, corn, potatoes, hay, etc. Fences, stone, good condition. House, 31×80 , $2\frac{1}{2}$ stories, almost new. Outbuildings: barns, 30×40 , 38×40 ; shed, 20×40 ; good condition. House and barns watered by wells, fields by springs. Kenosza Lake, $1\frac{1}{4}$ miles distant. This is a fine location for summer boarding place, capacity 35 people. Occupied by owner. Reason for selling, advanced age of owner. Price, \$6,000. Terms, $\frac{2}{3}$ cash, balance on mortgage. Address Fred Justin, Callicoon, N. Y., R. D. 1. Owner will rent.

TOWN OF HIGHLAND

Population 1,031

No. 1026 — Farm of 50 acres; located 2 miles from Barryville P. O.; 2 miles from railway station at Shohola, Pa., on line of Erie R. R.; 2 miles from school and milk station; 1 mile from Protestant church. Highways, somewhat hilly but good. Surface of farm, some rolling, mostly rough, wild land. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 8; in natural pasture, 3; in timber, 39, white pine, chestnut and oak. Acres tillable, 8. Fruit, currants, gooseberries, 1 plum, 3 apple and 3 peach trees. Best adapted to rye, buckwheat and corn. Fences, wire, poor condition. House, 9 rooms, good condition. Outbuildings, barn, 26×30 , 3 stories; hen house, ice house, bowling alley and pool room. Watered by spring and brook. Occupied by owner. Reason for selling, owner desires to go West. Price, \$4,500. Terms, \$3,000 cash, balance on mortgage. Address Chas. E. Phillips, Barryville, N. Y.

TOWN OF NEVERSINK

Population 1,743

No. 1027 — Farm of 162 acres; $1\frac{1}{4}$ miles from Grahamville; 12 miles from Fallsburg. Good stock farm, fine location. Plenty of wood, consisting of about 1,000 sugar maple trees and a quantity

of oak and chestnut. Sugar bush, equipped with evaporator for making maple sugar. Fine trout stream. Contains one of the finest locations for a fish pond and hatchery in the State. House, 44×48 , with wing, 24×26 , in good repair, well painted. Large barns and all necessary outbuildings, nearly new. Watered by springs and brook. Well fenced. Farm is well provided with machinery, new engine, ensi-elevator, 50-ton silo in barn, thresher and cleaner, wood saw, corn planter. Meadows all mowed with machine. Will be sold with or without machinery. Reason for selling, owner not able to work on farm, having only one hand. Price and terms on application to owner, Thomas Barkley, Grahamsville, N. Y.

No. 1028 — Farm of 140 acres; located 2 miles from Neversink P. O.; $8\frac{1}{2}$ miles from railway station at Luzon, on line of O. & W. R. R.; $\frac{1}{2}$ mile from school; 2 miles from Methodist church; $8\frac{1}{2}$ miles from milk station. Highways, good. Nearest large village, Liberty, 9 miles distant, reached by highway. Surface of farm, quite level. Soil, red slate and loam. Acres in meadow, 50; in natural pasture, 60; in timber, 40, beech, birch and maple. Acres tillable, 40. Fruit, apples, pears and plums. Fences, barbed wire and pole. House, 24×32 , nearly new, good condition. Outbuildings, basement barn, 26×46 , and shed, 22×42 , good condition. Watered, house and barns by springs, fields by brook. There is running water in house. Occupied by tenant. Reason for selling, owner has other business. Price, \$3,500. Terms, $\frac{1}{2}$ down. Address A. D. Wright, Neversink, N. Y. Owner will rent.

No. 1029 — Farm of 95 acres; located 1 mile from Neversink P. O.; 7 miles from railway station at Luzon, on line of O. & W. R. R.; 1 mile from school; $1\frac{1}{4}$ miles from Methodist church; 9 miles from milk station. Highways, good condition. Nearest large village, Liberty, 7 miles distant, reached by highway. Surface of farm, slightly rolling. Soil, red loam. Acres in meadow, 35; in natural pasture, 20; in timber, 40, beech, birch and maple. Acres tillable, 35. Fruit, apples, pears, plums and quinces, about 200 trees. Best adapted to oats, buckwheat and potatoes. Fence, barbed wire. House, large, 20 rooms. Outbuildings, barn, 26×36 , good condition; other necessary outbuildings. Watered, house

and barns by springs, fields by brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$4,000. Terms, $\frac{1}{2}$ down. Address Henry W. Dean, Neversink, N. Y.

TOWN OF ROCKLAND

Population 3,455

No. 1030 — Farm of 318 acres; $3\frac{1}{2}$ miles from Livingston Manor, on line of O. & W. R. R.; 2 miles from school; $3\frac{1}{2}$ miles from churches and milk station. Highways, State road. Nearest villages: Livingston Manor, $3\frac{1}{2}$ miles distant; Liberty, population 2,500, 12 miles distant, reached by rail and highway. Sur-

face of farm, rolling. Altitude, 1,500 feet. Soil, red slate loam. Acres in meadow, 70; in natural pasture, 70; in timber, 140, hemlock, pine and hardwood; acres tillable, 140; 29 apple and 4 pear trees. Best adapted to hay, potatoes, oats, corn and buckwheat. Fences, wire and stone wall, in fair condition. House, 20x29, with addition, 24x30, fair condition. Barn, 48x56; one, 48x39, and one, 18x24. Watered, house and barns piped, fields piped and watered by springs. Occupied by owner. Reason for selling, owner wishes to go into other business. Price, \$9,000. Terms, $\frac{1}{2}$ down. Address J. P. Johnson, Livingston Manor, Sullivan Co., N. Y.

TIOGA COUNTY

Area, 498 square miles. Population, 25,624. Annual precipitation, 47.11 inches. Annual mean temperature, 49.3°. Number of farms, 2,844. County seat, Owego.

This county is located in the southern tier of counties in about the center of the state and borders on Pennsylvania. It is intersected by the Susquehanna River. It is also drained by the Owego, Tatatonk and Pipe Creeks.

The surface is finely diversified by broad, verdant hills and valleys, some of which are quite deep. Woodlands of ash, beech, elm, hickory, oak and sugar maple and other trees cover nearly one-third of the county. The soil of the valleys is largely a deep gravelly loam, rich and fertile. That of the hills in the western section is a clay and gravelly loam. In the north black loam is much in evidence while south of the Susquehanna River shale and clay loam predominates. The soil is well adapted to general farming and pasturage. The leading crops are corn, 141,680 bushels; oats, 333,398 bushels; wheat, 20,924 bushels; buckwheat, 278,328 bushels; rye, 21,591 bushels; potatoes, 729,523 bushels; hay and forage, 80,889 tons. The value of all farm property is \$11,085,439, a gain of 12.6 per cent. since 1900. The average price of farm lands is \$14.29 per acre, but the average price of improved land is \$27.78. The total product of milk is 9,595,120 gallons; total receipts from the sale of dairy products, \$841,126.

The county is intersected by the Erie railroad, D., L. & W. main line and branch running north from Owego, and by three branches of the Lehigh Valley railroad. The local markets which may be found in Owego, Elmira, Ithaca and Binghamton are ample for all the products of the county and lie within a very short shipping distance. Buffalo, New York and Philadelphia furnish unlimited markets for those who wish to avail themselves of them.

There are 148 district schools in the county, several standard high schools and a free public academy located at Owego. There are a total of 1,067 miles of highway in the county, only 83 of which is not improved. The agricultural organizations established to conserve agricultural interest consist of a Pomona grange and two subordinate granges, two agricultural societies and two poultry associations.

TOWN OF BARTON

Population 6,431

No. 1031 — Farm of 110 acres; located $\frac{3}{4}$ mile from Waverly P. O., R. D. 1, and railway station, on line of D., L. & W., Erie, and Lehigh Valley R. R.; $\frac{1}{2}$ mile from school; $\frac{1}{2}$ mile from Methodist, Baptist, Episcopal, Presbyterian and Catholic churches; $\frac{3}{4}$ mile from milk station. Highways, good. Nearest large village, Waverly, population 4,855, $\frac{3}{4}$

mile distant, reached by highway. Surface of farm, rolling. Soil, clay subsoil. Acres in meadow, 42; in natural pasture, 25; in timber, 12, pine, oak, etc. Acres tillable, 98. Fruit, 14 apple, 8 cherries, 12 plums, 9 pears, 15 peaches. Best adapted to corn, oats, potatoes, buckwheat, wheat, etc. Fences, barbed wire, in good condition. House, brick, 10 rooms, in fair condition. Outbuildings: horse barn, 28x32, in good condition; shed, 32 feet long; barn, 30x40, in fair

condition; cow barn, 28x40, in poor condition; wagon house, 16x32; woodshed, chicken house, in good condition. Watered, house by spring and well, barns by spring, fields by springs. This farm is $2\frac{1}{2}$ miles from Susquehanna River. Occupied by owner. Reason for selling, ill health of owner. Price, \$7,500. Terms, \$3,000 cash, balance on time. Address J. E. Walker, Waverly, N. Y., R. D. 1.

TOWN OF BERKSHIRE
Population 846

No. 1032 — Farm of 134 acres; located $\frac{1}{2}$ mile from Berkshire P. O., R. D. 3; 1 mile from railway station at Berkshire, on line of Lehigh Valley R. R.; 1 mile from school, butter factory and milk station; $\frac{1}{2}$ mile from Protestant churches; 3 miles from cheese factory, and 1 mile from Borden plant. Highways, good. Nearest city, Ithaca, 20 miles distant, reached by rail and highway. Surface, level and hilly. Soil, loam. Acres in meadow, 30; in natural pasture, 100; in timber, 4, beech, chestnut and maple. Acres tillable, 130. Fruit, 25 apple trees, 1 pear tree. Best adapted to hay, corn, oats, potatoes, buckwheat and millet. Fences, mostly woven wire, good condition; 2 good houses. Outbuildings, 3 barns, one, 36x56; one, 20x30; one, 30x40; hen house and granary, good condition. Watered by three wells, springs and creek. Occupied by owner. Reason for selling, owner has other business. Price, \$9,000. Terms, $\frac{1}{2}$ cash. Address Geo. L. Andrews, Berkshire, N. Y.

TOWN OF CANDOR
Population 2,911

No. 1033 — Farm of 93 acres; located $2\frac{1}{2}$ miles from Straits Corners P. O., R. D. 1; 3 miles from railway station at West Candor, on line of Lehigh Valley R. R.; 1 mile from school and churches; 3 miles from butter factory and milk station; 7 miles from condensing plant. Highways, good. Nearest large village, Owego, population 4,633, 10 miles distant, reached by rail and highway. Surface of farm, half level, balance rolling and some side hill. Soil, 20 acres gravel, balance loam. Acres in meadow, 25; in natural pasture, 25; in timber, 15, hemlock, cherry, ash, beech, etc. Acres tillable, 68. Fruit, 50 apple, 1 pear, 3 peach, 1 crab apple, 4 cherry and 1 plum tree. Best adapted to buckwheat, oats, corn, potatoes, wheat, hay. Fences,

mostly wire, in fair condition. House, 10 rooms, in good condition. Outbuildings: basement barn, 36x56; shed attached, 20x40; wagon house attached, 26x35; hen house, tool house and hog house. Watered: house by running water, barns by running water, fields by creek and springs. Occupied by owner. Reason for selling, has other interests. Price, \$2,500. Terms, \$1,000 down, balance on bond and mortgage at 5%, easy payments. Address Walter E. Elmendorf, Candor, N. Y.

No. 1034 — Farm of 108 acres; located 2 miles from Straits Corners P. O., R. D. 1; 4 miles from railway station at West Candor, on line of Lehigh Valley R. R.; 1 mile from school; 1 mile from churches; $2\frac{1}{2}$ miles from butter factory; 4 miles from milk station; 7 miles from condensing plant. Highways, fair, somewhat hilly. Nearest large village, Owego, population, 4,633, 10 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 63; in natural pasture, 25; in timber, 20, hemlock, beech, basswood, maple. Acres tillable, 80. Fruit, 10 pears, 30 apples. Best adapted to potatoes, hay and small grains. Fences, wire and board, in fair condition. House, 16x28; wing, 16x22; in good condition. Outbuildings: basement barn, 42x60; hog pen and wagon shed, 20x22, in good condition. Watered: house by well and springs, barns by well, fields by creek and spring. This farm is 7 miles from the Susquehanna River. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,500. Terms, \$1,000 down, balance on mortgage at 5%, easy payments. Address O. C. Cook, Candor, N. Y.

No. 1035 — Farm of 70 acres; located 3 miles from Newark Valley P. O., R. D. 2; 3 miles from railway station at Flemingville, on line of Lehigh Valley R. R.; $\frac{1}{4}$ mile from school and churches; 1 mile from skimming factory. Highways, good. Nearest large village, Owego, population 4,633, 8 miles distant, reached by rail or highway. Surface of farm, level and rolling. Soil, fertile loam. Acres in timber, 3, hemlock, basswood, maple, etc. Acres tillable, 67. Fruit, 25 apples. Best adapted to general crops, as corn, potatoes, grain and hay. Fences, wire. House, 9 rooms, in good condition. Outbuildings: barn, 70x30; sheds, 50x18, 50x15;

silos, 10x28; hen house, 12x40. Watered: house and barns by wells, fields by springs. Occupied by owner. Price, \$4,000. Terms, ½ cash. Address James W. Baird, Newark Valley, N. Y., R. D. 2.

* No. 1036 — Farm of 135 acres; located ½ mile from Candor P. O. and railway station, on line of D., L. & W. R. R.; ½ mile from school; 1 mile from Congregational, Baptist, Methodist and Episcopal churches; ½ mile from butter and cheese factory and milk station. Highways, level. Nearest large village, Candor, population 737, ½ mile distant, reached by highway. Surface of farm, level and rolling. Soil, loam and gravel. Acres in meadow, 40; in natural pasture, 40; in timber, 2, mostly for fence posts and ties. Acres tillable, 120. Fruit, few grapevines and apple trees. Best adapted to corn, oats, buckwheat, barley, wheat, rye, hay, potatoes and fruit. Fences, wire, board, rail and stump, in fair condition. House, 2 story, hip roof, 12 rooms, in fair condition. Outbuildings: carriage house and horse barn, 40x55; hay barn, 40x50; stable, 20x60; hay barn, 40x80; hog pens, 20x30 and 18x20; silo, 12 feet, octagon, in fair condition. Watered: house by well, barns by well and creek, fields by creeks and springs. The Catatonk Creek runs through the edge of farm and the Susquehanna River is 10 miles distant. Occupied by tenant. Reason for selling, owner has other business. Price, \$7,500. Terms, ½ cash, balance on mortgage at 5% for five years. Address H. L. Hart, agent, 1104 Press Building, Binghamton, N. Y.

No. 1037 — Farm of 50 acres; located 1 mile from Candor P. O., R. D. 2; 1½ miles from railway station at Candor, on line of D., L. & W. R. R.; 1/10 mile from school; 1 mile from Congregational church; 2 miles from Methodist and Baptist churches; 2 miles from cheese factory; 1½ miles from milk station. Highways, good. Nearest large village, Owego, population 4,633, 10 miles distant, reached by rail and highway. Surface of farm, hilly, rolling and some level. Soil, loam and clay. Acres in meadow, 28; in natural pasture, 7; in timber, 15, oak, beech, maple, chestnut, second growth. Acres tillable, 35. Fruit, 25 apple, 4 plum, 11 cherries, 1 peach, 2 grapevines, 10 currants, 6 gooseberries.

Best adapted to oats, wheat, corn, buckwheat, potatoes and all kinds of fruit. Fences, barbed wire and rail, in fair condition. House, 36x32, 6 rooms, in good condition, newly painted. Outbuildings: barn, 24x32, in good condition; 3 small hen houses, in good condition. Watered: house by well, barns by spring, fields by springs and brooks. This farm is 1 mile from Catatonk Creek. Occupied by owner. Reason for selling, wants larger farm. Price, \$1,600. Terms, \$1,000 down, balance on easy payments. Address Clarence E. Wright, Candor, N. Y., R. D. 2.

TOWN OF NEWARK VALLEY

Population 2,102

No. 1038 — Farm of 100 acres; located 3 miles from Newark Valley P. O., R. D. 2; 3 miles from railway station at Flemingville, on line of L. V. R. R.; ½ mile from school, churches, butter factory and milk station. Highways, good. Nearest large village, Owego, 8 miles distant, reached by highway. Surface of farm, 40 acres hilly, 60 acres rolling and level. Soil, clay. Acres in meadow, 60; in natural pasture, 25; in timber, 2, small oak, pine and hemlock. Acres tillable, 80. Fruit, apples, pears, plums and cherries, also 4 grapevines. Best adapted to potatoes, buckwheat, corn and oats. Fences, about ½ woven wire, balance board, good condition. House, 40x60, 9 rooms, good condition. Outbuildings: horse barn, 30x60; barn, 36x40; cow barn, 36x60; sheep shed, 16x20; tool shed, 20x40; hen house, 12x20. Watered, house by running water, barn by pump, fields by springs. Occupied by owner. Reason for selling, owner wants to use money in other business. Price, \$3,600. Terms, \$1,600 cash, balance on mortgage. Owner wants to sell stock, tools and machinery. Address A. F. Barrott, 574 Main street, Owego, N. Y.

TOWN OF OWEGO

Population 7,474

No. 1039 — Farm of 406 acres; 2 miles from Apalachin P. O. and railway station, on line of D., L. & W. R. R.; ¼ mile from school; 2 miles from churches, butter factory and milk station. Highways, soon to be macadamized road ½ way. Nearest city, Binghamton, population about 50,000, 14 miles distant, reached by rail and highway. Surface,

* Indicates farm is in hands of agent or real estate dealer.

some rolling, mostly level. Soil, shaly and clay loam. Acres in natural pasture, 100; acres in timber, 300, oak, hemlock, pine and chestnut; acres tillable, 100. Fruit, a few apple, cherry and plum trees. Best adapted to hay, oats, corn, potatoes, buckwheat and wheat. Fences, wire and rail, poor condition. House, 18x30, 1½ stories, poor condition. Outbuildings: barn, 30x40, poor condition; wagon house, fair condition. Watered by well, spring and creek. Susquehanna River is 1 mile from farm. Reason for selling, owner cannot work farm. Price, \$5,000. Terms, ½ cash, balance to suit purchaser. If desired, owner will reserve sawing timber and leave wood and will then sell for \$2,500. Wood is worth about \$20 an acre. Address F. E. Boardman, Owego, N. Y. Owner will rent on shares.

No. 1040 — Farm of 45 acres; 1 mile south of Apalachin P. O. and railway station, on line of D., L. & W. R. R.; ½ mile from school; 1 mile from Protestant churches; R. D. 1 from Apalachin. Roads in vicinity, good. Nearest large village, Owego, population, 4,500, 6 miles distant, reached by rail and highway. Occupied by owner. Surface, level and rolling. Soil, clay loam. Acres in meadow, 43; natural pasture, 2; timber, 1, oak and chestnut; acres tillable, 43. Fruit, 100 apple trees, 100 sour and sweet cherry trees, pears, plums, peaches and grapes. Best adapted to fruit, potatoes and other crops, but especially fruits. Fences, woven wire and rail. House, 16x24, with a 16x20 addition, good cellar, first-class condition. Outbuildings: barn, 30x40; barn, 16x20; barn, 16x32, with basements, in good condition; barns have new roofs; also new carpenter and blacksmith shops. Watered, house and barns by well, fields by springs. Forest Lake 20 rods from back end of farm. This farm is located in a good neighborhood with a pleasant view of the Susquehanna River. Telephone in house. Farm is in a fine state of cultivation. Reason for selling, poor health of owner. Price, \$2,500. Terms, \$1,000 cash, balance on time. Address Wm. W. Jewett, Apalachin, N. Y.

No. 1041 — Farm of 60 acres; located 2 miles from Apalachin P. O. and railway station, on line of D., L. & W. R. R.; ½ mile from school; 2 miles from churches and milk station. Highways, good. Nearest large village, Owego, 8

miles distant, reached by rail and highway. Surface of farm, practically level. Soil, sandy loam. Acres in meadow, 25; in natural pasture, 2; in timber, 5, pine, hemlock and beech. Acres tillable, 55. Fruit, apples, cherries and grapes. Best adapted to corn, potatoes, oats, wheat and rye. Fences, principally braided wire. House, 10 rooms, good condition, slate roof. Outbuildings: barn, 80x28; barn, 26x30; grain house, wagon house, storehouse, etc. Watered by well and springs. Occupied by owner. Reason for selling, ill health of owner. Price, \$5,000. Terms, ½ down, balance on time. Address Geo. J. Sherwood, Apalachin, N. Y.

No. 1042 — Farm of 215 acres; located 6 miles from Owego P. O., R. D., and railway station, on line of D., L. & W. R. R.; 6 miles from school; ¾ mile from churches; ¾ mile from butter factory and 6 miles from milk station and condensing plant. Highways, good. Nearest large village, Owego, population 4,633, 6 miles distant, reached by highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 215; in natural pasture, 30; in timber, 50, mostly hardwood. Acres tillable, 135. Fruit, 50 apple trees. Best adapted to potatoes, buckwheat, oats and corn. Fences, wire, rail and stone. House, 10 rooms, in good condition. Outbuildings: barn, 100x45, basement, 20x40; shed, 16x85; horse barn, 30x40. This farm is 4 miles from the Susquehanna River. Occupied by owner. Price, \$25 per acre. Terms, easy. Reason for selling, old age of owner. Address J. U. Benjamin, Owego, N. Y. Owner will rent.

No. 1043 — Farm of 50 acres; located 2 miles from Owego P. O., R. D. No. 2, 1 mile from railway station at Hiawatha on line of Erie R. R.; ½ mile from school; 2 miles from churches of all denominations; 2 miles from butter factory; 2 miles from milk station and condensing plant. Nearest city, Binghamton, population 48,443, 18 miles distant, reached by rail or highway. Surface of farm, level. Soil, loam. Acres in meadow, 12; in natural pasture, 5. Acres tillable, 42. Fruit, apples, pears, plums and cherries. Best adapted to hay, grain and potatoes. Fences, wire, in fair condition. House, 11 rooms in good condition. Barn, 22x50, new; granary, 12x30, in good condition. Watered: house, by well and cistern; barns,

by well; fields, by creek. The Susquehanna river borders on this farm. Occupied by owner. Reason for selling, ill health. Price, \$4,500. Terms, \$2,000 cash, balance on mortgage. Address J. R. Neville, Owego, N. Y.

No. 1044 — Farm of 106 acres; located $4\frac{1}{2}$ miles from Owego P. O., R. D. 1; $2\frac{1}{2}$ miles from railway station at Apalachin on line of D., L. & W., and Erie R. R.; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from Presbyterian, Methodist and Catholic churches; $4\frac{1}{2}$ miles from butter factory; $2\frac{1}{2}$ miles from milk station; $4\frac{1}{2}$ miles from condensing plant. Highways, State road. Nearest large village, Owego, population 4,633; $4\frac{1}{2}$ miles distant, reached by rail or highway. Soil, fertile loam. Acres in meadow, 50; in natural pasture, 20. Acres tillable, 106. Fruit, 30 apple; 4 pear; 4 cherry; 6 plum, grapes, etc. Best adapted to grain, potatoes, hay, tobacco, etc. Fences, wire, in good condition. House, 60 feet front, 14 rooms, in good condition. Outbuildings: 2 barns, 40x60; shed, 70x30; cow barn, 70x30; hog house 15x25, also tenant house, 30x24; hen house and milk house. Watered: house by well; barns, by well; fields by Susquehanna river. This farm is bounded on the north by the Susquehanna river. Occupied by tenant. Reason for selling, owner has other business. Price, \$12,000. Terms, \$4,000 down; balance on easy terms. Address Mrs. C. B. Dean, Owego, N. Y., or John E. Goodrich, 51 North 10th street, Philadelphia, Pa.

* No. 1045 — Farm of 137 acres; located 7 miles from Owego P. O., R. D. No. 1; 3 miles from railway station at Campville on line of Erie R. R.; 1 mile from school; $\frac{1}{2}$ mile from butter factory; 3 miles from milk station. Highways, good. Nearest large village, Owego, population 4,633, 7 miles distant, reached by highway. Surface of farm, rolling. Soil, loam and gravel. Acres in meadow, 40; in natural pasture, 40; in timber, 20, pine, chestnut and oak. Acres tillable, 100. Fruit, 5 acres apples. Best adapted to grains, potatoes and pasture. Fences, in fair condition. House, 2-story in good condition and woodhouse. Outbuildings: barns, 40x72, 40x42, 30x100 and shed, 20x60; hog house; ice house; hen house; shop and milk house. Watered: house and

barns, by well; fields, by springs and creek. Occupied by owner. Reason for selling, to settle an estate. Price, \$4,500. Terms, cash. Address Fred T. Horton, agent, Owego, N. Y.

TOWN OF SPENCER

Population 1,520

No. 1046 — Farm of 234 acres; about 3 miles from Spencer P. O. and railway station, on line of L. V. R. R. and E. C. & N. R. R.; R. D.; 80 rods from school. Good soil. Acres in meadow, 50 to 60; tillable, 150 to 170; natural pasture, 30 to 40; timber, 15 to 20, hemlock, pine, beech, birch, maple, ash and basswood, second growth. About 75 fruit trees. Best adapted to oats, buckwheat, corn and potatoes. Fences, stump and wire, very good. House, 8 rooms, with summer kitchen, very good condition. Barn, 30x64, with basement and shed, in fair condition. Watered by well, springs and stream. A good dairy farm. Reason for selling, advanced age of owner. Price, \$5,000. Terms, \$2,000 to \$2,500 down and mortgage for remainder. Name and address of owner, Seymour Seely, Spencer, N. Y.

No. 1047 — Farm of 56 acres; 3 miles from Spencer P. O., R. D. 2; 3 miles from railway station at Spencer, on line of L. V. R. R.; $2\frac{1}{2}$ miles from Van Etten, on line of E. C. & Ct. R. R.; $\frac{1}{2}$ mile from school; 3 miles from churches, butter factory, milk station and milk condensing plant. Highways, good. Nearest large village, Waverly, 10 miles distant; nearest city, Elmira, 17 miles distant, reached by rail and highway. Surface of farm, a little rolling. Soil, gravelly loam. Acres in meadow, 15 to 20; in natural pasture, 10 to 12; in timber, 10 to 12, hard wood, beech, birch, maple, hemlock and pine; all tillable except timber land. Fruit, cherries, pears and apples, about 25 trees. Best adapted to oats, corn, buckwheat, wheat, rye and potatoes. Fences, wire, fair condition. House, 7 rooms, fair condition. Outbuildings: barn, 26x36, with basement; poultry house and other outbuildings; fair condition. Watered by spring and creek. Occupied by tenant. Reasons for selling, advanced age of owner. Price, \$1,400. Terms, $\frac{1}{2}$ cash, remainder on mortgage at 5% interest. Address Seymour Seely, Spencer, N. Y. Owner will rent.

* Indicates farm is in hands of agent or real estate dealer.

No. 1048 — Farm of 824 acres; located 3 miles from Spencer P. O. and railway station, on line of L. V. R. R.; $\frac{1}{4}$ mile from school; 3 miles from churches, milk shipping station and milk condensing plant. Highways, small hills but generally good. Nearest large village, Waverly, 8 miles distant, reached by rail and highway. Surface of farm, level and hilly. Altitude, 1,500 feet. Soil, good. Acres in meadow, 350; in natural pasture, 50; in timber, 424, hemlock, chestnut, ash and basswood. Acres tillable, 350. Fruit, apples, peaches and cherries. Best adapted to oats, buckwheat, wheat, hay, corn and rye. Fences, wire and stump, fair condition. House, 30x30, good condition, two smaller houses. Outbuildings: barn, 30x50, with addition, 24x30, basement and silo; barn, 28x56, with basement. Watered, house by well; barns, by springs; fields, by springs and creek. Occupied by tenant. Reason for selling, to close an estate. Price \$16 per acre. Terms, $\frac{1}{2}$ cash, balance on mortgage. Address The S. Alfred Seely Estate, Spencer, N. Y. Owner will rent.

No. 1049 — Farm of 14 acres; located 1 mile from Spencer P. O.; $\frac{3}{4}$ mile from railway station at Spencer, on line of L. V. R. R.; 1 mile from churches, school, butter factory, milk station and milk condensing plant. Highways, good. Nearest city, Ithaca, 18 miles distant, reached by rail. Surface of farm, slightly rolling. Soil, loam. Acres in meadow, 6; acres tillable, 14. Fruit, apples, peaches, strawberries, pears, cherries and plums. Fences, wire, good condition. House, 7 rooms, good condition. Outbuildings: barn, 16x24; shed, 10x24; hen house, fair condition. Watered by well, creek and spring. Occupied by owner. Reason for selling, owner wishes to go into other business. Price, \$1,600. Terms, \$1,100 cash, balance on mortgage at 6%. Address Wm. Stark, Van Etten, N. Y., Chemung County.

No. 1050 — Farm of 80 acres; located 1 mile from Halsey Valley P. O., R. D. No. 2 and railway station at West Candor on line of Lehigh Valley R. R.; 1 mile from school; 1 mile from churches; 1 mile from butter factory; 5 miles from milk station; 7 miles from condensing plant. Highways, good, some hilly. Nearest large village, Owego, population 4,633, 12 miles distant,

reached by highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 30; in timber, 15, small beech, birch and maple. Acres tillable, 65. Fruit, 25 apple trees. Adapted to nearly all kinds of crops. Fences, wire, in good condition. House, 8 rooms, in good condition. Outbuildings: barn, 32x44; hen house; hog houses and wood house, in good condition. Watered: house, by well; barns, by spring; fields, by springs and brook. Occupied by tenant. Price, \$2,350. Terms, $\frac{1}{2}$ cash, balance on mortgage at 5%. Address William G. Shaw, Spencer, N. Y.

No. 1051 — Farm of 824 acres; located 3 miles from Spencer P. O., R. D., and railway station on line of L. V. R. R.; $\frac{1}{4}$ mile from school; 3 miles from Baptist, Presbyterian, Methodist and Episcopal churches; 3 miles from milk station; 3 miles from condensing plant. Highways, good, part hilly. Surface of farm, part hilly, part level. Soil, silt loam. Acres in meadow, 200; in natural pasture, 200; in timber, 400, second growth hemlock, chestnut, maple, etc., some large basswood and ash. Acres tillable, 400. Fruit, apples, cherries, peaches, etc. Best adapted to oats, buckwheat, potatoes, etc. Fences, wire and board, wire fences in good condition. House, 30x30, in good condition. Outbuildings: 40x60, with addition, 30x40; barn, 30x30, in good condition. Watered: house by well; barns, by spring; fields, by springs and creek. Reason for selling, too much land. Price, \$18 per acre. Terms, \$2,000 to \$4,000 cash, balance on mortgage. Address the S. Alfred Seely Co., Spencer, N. Y. Owner will rent.

No. 1052 — Farm of 23 acres; located $1\frac{1}{2}$ miles from Spencer P. O.; 1 mile from railway station at Spencer on line of Lehigh Valley R. R.; $1\frac{1}{2}$ miles from school; $1\frac{1}{2}$ miles from Baptist, Methodist, Presbyterian, Episcopal churches; $1\frac{1}{4}$ miles from milk station and condensing plant. Highways, good. Nearest large city, Ithaca, population 14,802, 18 miles distant, reached by rail or highway. Surface of farm, slightly rolling. Soil, yellow loam. Acres in meadow, 10; in natural pasture, 4. Acres tillable, 19. Fruit, 49 apple, 130 peach, pear, plum, cherries and quinces, plenty of pie plant, currants, raspberries and strawberries. Fences, wire, in good condition. House, 7 rooms in good condition. Outbuildings, in good condition. Watered: house,

by well; fields, by spring and creek. This farm is 3 miles from Spencer Lake. Occupied by owner. Reason for selling, ill health of owner. Price, \$1,600. Terms, \$1,100 cash, balance on mortgage. Address William Stark, Van Etten, N. Y., R. D. No. 2.

No. 1053 — Farm of 15 acres; located 1½ miles from Spencer P. O., R. D. No. 1; 2 miles from railway station at Spencer on line of L. V. R. R.; ¼ mile from school; 2 miles from churches of all denominations; 2 miles from butter and cheese factory; 2 miles from milk station and condensing plant. Highways,

good. Nearest village, Spencer, population, 529; 1½ miles distant, reached by highway. Surface of farm, slightly rolling. Soil, black loam. Acres tillable, 15. Fruit, 10 cherries, apples, 6 pears, plums, 4 grape vines and rhubarb. Best adapted to corn, hay, oats, buckwheat, truck gardening, poultry, etc. House, 8 rooms, in good condition. Out-buildings: barn, 16x40. Watered, house, by well; fields, by springs. This farm is ¾ mile from Spencer Lake. Occupied by tenant. Price, \$1,600. Terms, \$800 cash, balance on mortgage at 6%. Address George Wallace, 632 15th street, Niagara Falls, N. Y. Owner will rent.

TOMPKINS COUNTY

Area, 494 square miles. Population, 33,647. Annual precipitation, 38.28 inches. Annual mean temperature, 47.3°. Number of farms, 2,988. County seat, Ithaca. This county is situated in the south central part of the state and comprises the southern part of Cayuga Lake, the head of which is near the middle of the county.

The surface is partly undulating and is diversified with hills and valleys. In the northern part of the county from a line running east from Ithaca the surface is gently undulating and level. The southern and eastern portions of the county are quite hilly, diversified with wide valleys and deep ravines. The soil of the entire county is mostly of a rich sandy and gravelly loam with deposits of black loam scattered over the northern part. About nine miles northwest of Ithaca is a cataract called Taughannock Falls, which has a perpendicular height of 190 feet. This is higher than Niagara Falls. Forests of pine, oak, ash, elm, beech, sugar maple, etc., cover a considerable portion of the county. Tully limestone, slate and sandstone are among the minerals of the county. The county ranks third in the production of salt.

Along the shore of Cayuga Lake the grape industry is in a high state of development. Leading crops as reported were corn, 278,503 bushels; oats, 596,746 bushels; wheat, 144,917 bushels; buckwheat, 293,086 bushels; barley, 46,079 bushels; potatoes, 689,360 bushels; hay and forage, 88,527 tons. Of domestic animals there are reported: Dairy cows, 15,008; horses, 8,120; swine, 8,928; sheep, 19,644; poultry, 183,706. The total value of farm property is \$14,896,795, an increase of 17 per cent. over the census of 1900. The average price of improved farm land is \$42.82 per acre. The milk production was 8,059,296 gallons; total receipts from the sale of dairy products, \$732,549.

The county is intersected by the main line and three branches of the Lehigh Valley railroad and by a branch of the Delaware, Lackawanna and Western. Ithaca has a population of about 15,000 and is the home of Cornell University, one of the leading institutions in the country. The State Agricultural College is also located there. There are 152 district schools which with the academies and graded schools in villages furnish excellent educational facilities. The 35 milk stations and factories supply the needs of the farmers along dairy lines and the interest in farming and fruit raising is maintained by an ample number of agricultural organizations.

TOWN OF DRYDEN

Population 3,716

No. 1054 — Farm of 53 acres; located 5 miles from Freeville P. O., R. F. D.; 2½ miles from railway station at Hagin, on line of L. V. R. R. and Auburn & Lansing R. R. Nearest large village, Free-

ville. Highways, good. Soil, loam, not very stony. Acres in meadow, 40; in natural pasture, 5; in timber, 3. Acres tillable, 50. Fruit, 80 apple trees, 4 peach trees, also grapes, pears and plums. Best adapted to potatoes and grain. Occupied by tenant. Fences, board, wire and rail, good condition. House, 13

rooms, 2 stories, good condition. Basement barn. Watered by well and creek. Within 4 miles of Cayuga Lake. Price, \$3,000. Terms, \$1,000 down, balance on time. Address Geo. W. Wolcott, McLean, N. Y., Box 156. Owner will rent.

TOWN OF ENFIELD

Population 1,000

No. 1054½ — Farm of 102 acres; 2 miles from post office; 9½ miles from railway station at Trumansburg; ½ mile from school; 3 miles from churches. Highways, good. Soil, good. Some timber. Fruit, apple orchard. Adapted to any kind of crop. Fences, in fair condition. House, 8 rooms. Two barns, in fair condition. Watered by well, creek and streams. Occupied by tenant. Reason for selling, owner lives elsewhere. Price, \$3,800. Terms, part cash, remainder on time. Address Sophia A. White, 58 Port Watson street, Cortland, N. Y.

TOWN OF LANSING

Population 2,653

No. 1055 — Farm of 235 acres; located 3 miles from Ludlowville P. O.; 2 miles from railway station at Tarbell, on line of N. Y., A. & L. R. R.; 1 mile from school; 2 miles from church; 3 miles from butter factory. Highways, good. Nearest city, Ithaca, 10 miles distant, reached by rail and highway. Surface of farm, nearly level, sloping little to west. Altitude, 900 feet. Soil, gravelly loam. Acres in meadow, 80; in natural pasture, 52; in timber, 70, beech, maple and basswood. Acres tillable, 64. Fruit, 180 trees. Fences, wire, board and rail, fair condition. House, 11 rooms, built 7 years ago. Outbuildings, barn, 30x40; barn, 80x36; barn, 80x24; barn, 16x24; also small tenant house with barn and log house used as work shop. Watered by well and spring. Occupied by tenant. Price, \$65 per acre. Terms, ½ cash. Address John R. Conklin, Groton, N. Y. Owner will rent.

No. 1056 — Farm of 127 acres; located 5 miles from Ludlowville P. O., R. D. No. 9; 2 miles from railway station at Lake Ridge on line of L. V. R. R.; 2 miles from school; 2 miles from churches; ¾ mile from butter factory and milk station. Highways, good. Nearest city, Ithaca, population 14,802, 14 miles distant, reached by rail. Surface of farm, rolling. Soil, black muck. Acres in meadow, 80; in natural pasture,

5; in timber, 12, oak, maple, etc. Acres tillable, 112. Fruit, 250 apple trees. Best adapted to corn, hay, wheat, barley, etc. Fences, wire and board, in good condition. House, 16 rooms, tenant house, 8 rooms. Outbuildings: main barn, 55x32; shed, 60x18; barn, 33x28; wagon house, 28x20, all in good condition. Watered, house, barns and fields, by wells. This farm is 2 miles from Cayuga Lake. Occupied by owner. Price, \$6,500. Terms, cash. Address Frank Whipple, Ludlowville, N. Y., R. D. No. 9.

No. 1057 — Farm of 63 acres; located 1¼ miles from Heddens P. O., R. D. No. 9; 1¼ miles from railway station at Lake Ridge on line of L. V. R. R.; 1 mile from school; 2½ miles from churches; 2 miles from butter factory and milk station. Nearest city, Ithaca, population 14,802, 14 miles distant, reached by rail or highway. Surface of farm, rolling. Soil, clay loam. Acres in meadow, 20; in natural pasture, 10; in timber, 8, oak, elm, etc. Acres tillable, 45. Fruit, 1,800 peach, 75 apple, 50 cherries, 300 plum trees. Best adapted to hay, corn, wheat and fruit. Fences, wire, in fair condition. House, 14 rooms, in good condition. Outbuildings: barn, 30x44; fruit house, 35x16; hog house, hen house. Watered: house, by well; barns, by springs; fields, by springs. This farm is ¼ mile from Cayuga Lake. Occupied by owner. Reason for selling, wishes to go to California. Price, \$5,000. Terms, cash. Address Fred J. Baures, Ludlowville, N. Y., R. D. No. 9.

No. 1058 — Farm of 12 acres; located 5 miles from Ludlowville P. O., R. D. No. 9; 1½ miles from railway station at Lansing, on line of L. V. R. R.; ¼ mile from school; 1¼ miles from churches; 1½ miles from butter factory; 1½ miles from milk station. Highways, good, level. Nearest city, Ithaca, population 14,802, 13 miles distant, reached by rail or highway. Surface of farm, level. Soil, loam. All tillable. Fruit, peaches, apples and cherries. Best adapted to hay, corn, wheat and fruit. Fences, wire, in fine condition. House, 7 rooms. Outbuildings: barn, 40x20, and shed, in good condition. Watered: house and barns by well. This farm is 1 mile from Cayuga Lake. Reason for selling, to settle an estate. Price, \$2,500. Address Mrs. George Boyer, Ludlowville, N. Y., R. D. No. 9.

TOWN OF NEWFIELD

Population 1,509

No. 1059 — Farm of 80 acres; 2 miles from Newfield. Good house and barn. Well watered. Price, \$1,800. Address Sophia A. White, 56 Port Watson street, Cortland, N. Y.

* No. 1060 — Farm of 100 acres; located 4 miles from Newfield P. O., R. D. No. 30 and railway station, on line of Lehigh Valley Railway; 1 mile from school; 4 miles from Protestant churches, butter factory, cheese factory and milk station; 10 miles from milk condensing plant. Highways, somewhat hilly, but good. Nearest city, Ithaca, 11 miles distant, reached by highway. Surface of farm, slightly rolling. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 20; in natural pasture, 15; in timber, 3, mostly hard wood. Acres tillable, 60. Fruit, apples, pears and plums. Best adapted to corn, potatoes, barley, oats and buckwheat. Fences, mostly wire, poor condition. House, 7 rooms, fair condition. Outbuildings, good barn, and other outbuildings, fair condition. Watered by well and springs. Unoccupied. Reason for selling, owner lives in west. Price, \$1,700. Terms, \$600 down, balance on long time. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

*No. 1061 — Farm of 148 acres; located 5 miles from Newfield P. O., R. D. No. 30; 6 miles from railway station at Newfield, on line of L. V. R. R.; 1 mile from school; 6 miles from Baptist church; 5 miles from butter and cheese factory; 12 miles from milk condensing plant. Highways, somewhat hilly but good. Nearest city, Ithaca, 14 miles distant, reached by highway. Surface of farm, some hills, rather rough. Altitude about 1,300 feet. Soil, loam. Acres in meadow, 20; in natural pasture, 20; in timber, 40, maple, beech and basswood. Acres tillable, 50. Best adapted to oats, buckwheat, corn, potatoes and barley. Fences, wire and rail, poor condition. House, 24x30, fair condition. Outbuildings, two barns, 30x40, good condition; other outbuildings in fair condition. Watered by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$1,500. Terms, part cash, balance on time. Address D. W. Stark, agent, Newfield, N. Y., R. D. No. 30.

*No. 1062 — Farm of 100 acres; located 6 miles from Newfield P. O., R. D. No. 30 and railway station, on line of L. V. R. R.; 1 mile from school; 6 miles from butter factory, cheese factory and Protestant churches; 11 miles from milk condensing plant. Highways, hilly, but good. Nearest city, Ithaca, 13 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 1,300 feet. Soil, loam. Acres in meadow, 20; in natural pasture, 10; in timber, 20, beech, maple, basswood and birch. Acres tillable, 40. Fruit, apples, pears, plums and cherries. Best adapted to corn, potatoes, oats, buckwheat and barley. Fences, mostly rail, poor condition. No house. Large basement barn, fair condition. Watered by well and springs. Unoccupied. Reason for selling, advanced age of owner. Price, \$1,000. Terms, part cash, balance on time. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30. Owner will rent.

*No. 1063 — Farm of 107 acres; located 6 miles from Newfield P. O., R. D. No. 30 and railway station, on line of L. V. R. R.; 1 mile from school; 6 miles from cheese factory, milk station and Protestant churches; 10 miles from milk condensing plant. Highways, good. Nearest city, Ithaca, 13 miles distant, reached by highway. Surface of farm, sloping to south. Altitude, about 1,500 feet. Soil, yellow loam. Acres in meadow, 15; in natural pasture, 10; in timber, 40, good quality. Acres tillable, 40. Fruit, apples, pears and cherries. Best adapted to wheat, corn, potatoes and buckwheat. Fences, mostly rail, poor condition. House, 16x24, poor condition. Outbuildings, large barn in good condition, other outbuildings in fair condition. Watered by well and spring. Occupied by owner. Reason for selling, owner has too much land. Price, \$1,000. Terms, ½ cash, balance on time. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

*No. 1064 — Farm of 124 acres; located 2½ miles from Newfield P. O., R. D. No. 30 and railway station, on line of L. V. R. R.; ½ mile from school; 2½ miles from butter factory, milk station and Protestant churches; 8 miles from milk condensing plant. Highways, good. Nearest city, Ithaca, 10 miles distant, reached by highway. Surface

* Indicates farm is in hands of agent or real estate dealer.

of farm, nearly level. Altitude about 1,300 feet. Soil, dark loam. Acres in meadow, 20; in natural pasture, 25; in timber, 10, ash, beech, maple. Acres tillable, 75. Fruit, apples, pears, plums and cherries. Best adapted to corn, wheat, barley, oats and buckwheat. Fences, rail and wire, poor condition. House, large, 2 stories, good condition. Outbuildings, large size, good condition. Watered by well, springs and brook. Occupied by owner. Reason for selling, ill health. Price, \$4,200. Terms, part cash, balance on time. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

*No. 1065 — Farm of 61 acres; located 5 miles from Newfield P. O., R. D. No. 30 and railway station, on line of L. V. R. R.; $\frac{1}{4}$ mile from school; 5 miles from butter factory and Protestant churches; 4 miles from milk station; 10 miles from cheese factory and milk condensing plant. Highways, somewhat hilly, but good. Nearest city, Ithaca, 12 miles distant, reached by highway. Surface of farm, partly level and partly hilly. Altitude, 1,400 feet. Soil, loam. Acres in meadow, 10; in natural pasture, 15; in timber, 10. Acres tillable, 30. Fruit, apples, pears and cherries. Best adapted to corn, potatoes, oats, buckwheat and wheat. Fences, mostly rail, some wire, poor condition. House, good size and in good condition. Outbuildings, barn, hog pen, shed and hen house, all in good condition. Watered by well, spring and brook. Occupied by owner. Reason for selling, owner a widow. Price, \$1,100. Terms, $\frac{1}{2}$ down, balance on long time. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

*No. 1066 — Farm of 50 acres; located 5 miles from Newfield P. O., R. D. No.

30; 5 miles from school; 1 mile from churches; 5 miles from cheese factory and milk station; $4\frac{1}{2}$ miles from condensing plant. Highways, hilly, good. Nearest city, Ithaca, population 14,802, 14 miles distant reached by highway. Surface of farm, rolling. Soil, loam. Acres in meadow, 3; in natural pasture, 6; in timber 8, chestnut, etc. Acres tillable, 20. Best adapted to corn, potatoes, rye, buckwheat. Fences, wire, in poor condition. House, 6 rooms, in good condition. Good barn. Watered, house and barn by well, fields by spring and brook. This farm is 10 miles from Cayuga Lake. Occupied by owner. Reason for selling, wants to go to the city. Price, \$1,500. Terms, cash. Price included team of horses and all farming tools. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

No. 1067 — Farm of 200 acres; located 5 miles from Newfield P. O., R. D. No. 30, and railway station, on line of L. V. R. R.; 1 mile from school; 5 miles from churches; 5 miles from butter and cheese factory; 5 miles from milk station; 11 miles from condensing plant. Highways, good. Nearest city, Ithaca, population 14,802, 12 miles distant, reached by highway. Surface of farm, rolling. Good soil. Acres in meadow, 40; in natural pasture, 20; in timber, 10, mostly second growth. Acres tillable, 150. Fruit, two small orchards. Adapted to all farm crops. Fences, wire, in poor condition. House, 16x24; wing, 14x26, in fair condition. Barns, in fair condition. Watered, house by well, barns and fields by springs. This farm is 10 miles from Cayuga Lake. Occupied by owner. Price, \$4,200. Terms, $\frac{1}{2}$ down, balance on easy terms. Address D. Stark, agent, Newfield, N. Y., R. D. No. 30.

ULSTER COUNTY

Area, 1,150 square miles. Population, 91,769. Annual precipitation, 38.28 inches. Annual mean temperature, 46.3°. Number of farms, 5,022. County seat, Kingston.

This county is located in the eastern part of the state and is bounded on the east by the Hudson River. It is intersected by the Wallkill and Rondout Rivers and is drained by the Neversink and the Shawangunk Rivers and by Esopus Creek.

The surface is hilly and partly mountainous and is extensively covered with forests of hickory, oak, chestnut, elm, pine, sugar maple, hemlock, etc. The southern part is occupied by the Shawangunk Mountains and the northern part by the Catskill Mountains. There are several lakes, among which is Lake Mohawk, a popular summer resort. Devonian sandstone is found here in abundance and large

* Indicates farm is in hands of agent or real estate dealer.

quantities are quarried and shipped to New York City and other points by water. Extensive quantities of water lime are used in making Portland cement, an industry which exceeds a million dollars in value annually. The soil is quite productive, especially in the valleys along the Hudson River and is mostly of a clay and gravelly loam; considerable limestone soil is also found. Crops reported are corn, 433,322 bushels; oats, 225,235 bushels; wheat, 24,627 bushels; buckwheat, 93,557 bushels; rye, 103,132 bushels; potatoes, 293,415 bushels; hay and forage, 90,285 tons. Along the Hudson River conditions are exceedingly favorable for the growing of small fruits and apples, pears, peaches, etc. This county ranks first in the production of small fruits and third in the production of grapes. The villages and cities of the county furnish large markets and New York City can be reached quickly and cheaply by way of the Hudson River. The valuation of all farm property is \$29,439,672, an increase of 16.7 per cent. over that of 1900. There is a large acreage offered for sale in this bulletin at a price below the agricultural value of the land. Domestic animals reported: Dairy cows, 23,065; horses, 9,724; swine, 14,843; sheep, 5,721; poultry, 265,195. Total production of milk, 10,702,160 gallons, and the total value of all dairy products is \$1,015,894. Excellent transportation facilities are found in this county and the markets are ample for everything that can be raised. The city of Kingston, the county seat, has a population of 25,908 and is located 85 miles from New York City and 55 miles from Albany. At New Paltz a state normal college is located. Two hundred and eighteen district schools and academies and graded schools in villages give ample educational advantages. There are 74 miles of state and county roads and 1,561 miles of other improved highways. Ulster county has 16 agricultural associations for the promotion of general farming and stock raising.

TOWN OF DENNING

Population 615

No. 1068 — Farm of 100 acres; located $\frac{1}{2}$ mile from Sundown P. O.; 20 miles from railway station at Ellenville, on line of N. Y., O. & W. R. R.; $\frac{1}{10}$ mile from school and churches; 7 miles from milk station. Highways, good. Nearest village, Ellenville, population 3,114, 20 miles distant, reached by highway. Surface of farm, level. Soil, good. Acres in meadow, 30; in natural pasture, 40; in timber, 30, chestnut and oak. Acres tillable, 70. Fruit, 100 apple trees. Best adapted to buckwheat, oats and corn. Fences, wire, in good condition. House, 2 story, 9 rooms. Outbuildings, barn, 26x50, in good condition. Watered, house by running water and well, barns by running water, fields well watered. Price, \$2,500. Terms, cash. Address Aquilla Smith, Sundown, N. Y.

No. 1069 $\frac{1}{2}$ — Farm of 400 acres; located $\frac{1}{2}$ mile from Sundown P. O.; 20 miles from railway station at Ellenville, on line of N. Y., O. & W. R. R.; $\frac{1}{10}$ mile from school; $\frac{1}{10}$ mile from churches; 7 miles from milk station. Highways, good. Nearest village, Ellenville, population 3,114, 20 miles distant, reached by highway. Surface of farm, mostly level and a little rolling. Soil,

good. Acres in meadow, 70; in natural pasture, 100; in timber, 230, chestnut, oak, beech, birch and maple. Acres tillable, 170. Fruit, 200 apple trees. Best adapted to buckwheat, oats and corn. Fences, wire. House, almost new, 14 rooms. Outbuildings, 2 good barns, also wagon house. Watered, house and barns by running water. Occupied by owner. Price, \$5,000. Terms, cash. Address Benjamin Ter Bush, Sundown, N. Y.

No. 1069 — Farm of 105 acres; located $\frac{3}{4}$ mile from Sundown P. O.; 20 miles from railway station at Ellenville, on line of N. Y., O. & W. R. R.; $\frac{1}{2}$ mile from school; $\frac{1}{2}$ mile from Methodist and Baptist churches; 7 miles from milk station. Highways, good. Nearest village, Ellenville, population 3,114, 20 miles distant, reached by highway. Surface of farm, hilly. Soil, good. Acres in meadow, 30; in natural pasture, 40; in timber, 35, chestnut, oak, beech, birch and maple. Acres tillable, 60. Fruit, 50 apple trees, 10 peach, 5 pear, 5 plum. Best adapted to buckwheat, oats, corn and rye. Fences, wire. House, 26x36, in good condition. Barn, 26x60, in good condition. Watered, house and barns by running water. Occupied by owner. Price, \$2,000. Terms, cash. Address Norman E. DuBois, Sundown, N. Y.

TOWN OF ESOPUS

Population 4,786

* No. 1070—Farm of 60 acres; located $\frac{1}{2}$ mile from Fly Mountain P. O.; $2\frac{1}{2}$ miles from railway station at Kingston, on line of W. S. R. R.; $\frac{1}{8}$ mile from school; 1 mile from Catholic and Protestant churches; $2\frac{1}{2}$ miles from butter factory, cheese factory and milk station. Highways, good State roads. Surface of farm, 20 acres level, balance rolling. Soil, sandy loam. Acres in meadow, 40; in natural pasture, 10; in timber, 10, oak, chestnut and hickory. Acres tillable, 40. Fruit, apples, pears, etc. Best adapted to hay, oats, corn, rye and gardening. Fences, wire and stone. House, 8 rooms, good condition. Barn and outbuildings in good condition. Watered, house by well and cistern, barns by brook, fields by springs and brook. Occupied by owner. Reason for selling, advanced age of owner. Price, \$7,500. Terms, part down, balance may remain on mortgage. Address The Hudson River & Catskill Mountain Land Agency, Kingston, N. Y.

* No. 1071—Farm of 10 acres; located 3 miles from Kingston P. O. and railway station, on line of West Shore R. R. Highways, State road. Nearest city, Kingston, population 25,908, 3 miles distant, reached by highway. Surface of farm, 6 acres level, balance timber. Fruit, 45 trees, apples, pears, cherries, crab apples, currants, strawberries, grapes, rhubarb and $\frac{1}{2}$ acre asparagus. House, 12 rooms in fine condition. Outbuildings, barn, 30x25; garage, 20x25; hen house, 10x75; incubator house, 16x16; log cabin, 12x12. A lake is situated on the property. Occupied by owner. Reason for selling, has interests elsewhere. Price, \$7,000. Address J. H. Fort, agent, Stone building, Oneida, N. Y.

TOWN OF GARDINER

Population 2,779

No. 1072—Farm of 151 acres; located 3 miles west of New Paltz, on line of Walkill Valley R. R.; $\frac{1}{2}$ mile from school; 3 miles from churches, milk station and milk condensing plant. Highways, good. Surface of farm, mostly level. Acres in meadow, 5; in natural

pasture, 16; in timber, 10. Acres tillable, 120. Fruit, 3 acres of apples. Best adapted to general farming. Fences, wire and stone wall, good. House, 62x25, $2\frac{1}{2}$ stories, 14 rooms, tenant house, 2 stories, 4 rooms. Outbuildings, barn, 143x30. Watered by well, cistern and spring. Occupied by tenant. Price, \$37 per acre. Terms, $\frac{2}{3}$ down, balance on mortgage at 5%. Address Henry L. Rymph, Poughkeepsie, N. Y., R. F. D.

No. 1073—Farm of 175 acres; located 3 miles west of New Paltz, on line of Walkill Valley R. R.; 1 mile from school; 3 miles from milk station, Catholic and Protestant churches. Highways, good. Surface of farm, mostly level. Soil, clay loam. Acres in meadow, 10; in natural pasture, 21; in timber, 10. Acres tillable, 128. Some fruit. Best adapted to general farming. Fences, stone wall and wire. House, large, 12 rooms, nearly new. Outbuildings: barn, 45x45, lean-to attached, 30x40, accommodate 50 head of stock, granary, wagon house and hen house, all in first-class condition. Watered, house by well and cistern; barns, by well; fields, by stream. Occupied by tenant. Reason for selling, owner in other business. Price, \$36 per acre. Terms, $\frac{2}{3}$ down, balance on bond and mortgage at 5%. Address Henry L. Rymph, Poughkeepsie, N. Y., R. F. D.

No. 1074—Farm of 286 acres; located 3 miles west of New Paltz, on line of Walkill Valley R. R.; 1 mile from school; 3 miles from milk station, Catholic and Protestant churches. Highways, good. Surface of farm, rolling. Soil, limestone, good for alfalfa. Acres in meadow, 35; in natural pasture, 50; in timber, 41, mostly chestnut. Acres tillable, 160. Some fruit. Best adapted to grass, grain and general farming. Fences, post, wire and stone wall, good condition. House, $1\frac{1}{2}$ stories with basement, 7 rooms, good condition. Outbuildings: barn, 30x40, with shed attached, 20x40, and other outbuildings, all in good condition. Watered by well and stream. Occupied by tenant. Price, \$15 per acre. Terms, $\frac{2}{3}$ down, balance on mortgage. Address Henry L. Rymph, Poughkeepsie, N. Y., R. F. D.

* Indicates farm is in hands of agent or real estate dealer.

TOWN OF HARDENBURG.

Population 598

No. 1075 — Farm of 255 acres; 2 miles from Lew Beach P. O.; mail delivered daily $\frac{1}{4}$ mile from house; 11 miles from station at Livingston Manor, on line of the N. Y., O. & W. R. R.; $\frac{3}{4}$ mile from school; 2 miles from Presbyterian and Methodist churches. Highways, fair but hilly. Nearest villages, Shavertown, 8 miles distant, and Livingston Manor, population of 800, distant 11 miles by highway. Surface, rolling. Soil, red slate, clay and loam, mixed. Eighty acres of meadow; 90 acres of pasture; 85 acres of brush and timber, hemlock, hard wood, etc.; about 130 acres tillable. Large apple orchard and a few pear trees. Maple orchard of about 400 trees. Land adapted to raising of oats, rye, buckwheat, potatoes, and to dairying. Fences of stone, wire and wood, in fair condition. One and one-half story house, 9 rooms, in fair condition. Barn, 26x48, with annex, 14x48; wagon house, 24x26, with annex, 26x36; granary; hen house; hog pen; sap house, in fair condition. House and barns are watered by springs; fields, have springs and a trout stream. The Beaverkill river is $\frac{1}{4}$ mile; Lake Marion, 1 mile; Mountain Lake, 2 miles distant. This place is in vicinity of large summer boarding houses and country homes of city people. A good dairy, sheep and poultry farm, with good markets. Occupied by owner. Reason for selling, owner is lame. Price and terms given on application to owner. Will rent with option to buy to desirable parties. Address Byron Barnhart, Lew Beach, Sullivan Co., N. Y.

No. 1076 — Farm of 150 acres; $1\frac{1}{2}$ miles from Seager P. O.; 8 miles from railway station at Arkville, on line of U. & D. R. R.; 2 miles from school and churches; 8 miles from butter and cheese factory, milk station and condensing plant. Highways, good, some hilly. Nearest large village, Margaretville, population 1,000, 9 miles distant, reached by highway and rail. Surface, rolling and level. Soil, sandy loam and clay loam. Acres in meadow, 50; in natural pasture, 40; in timber, 60; hemlock, maple, beech, oak, etc.; acres tillable, 150. One hundred fruit trees. Best adapted to corn, potatoes, buckwheat, oats, etc. Fences, in fair condition. House, 26x34, in fair condition. Two

medium-sized barns, in need of some repairs. Watered by spring. Occupied by tenant. Reason for selling, death of former owner. Price, \$2,000. Terms, cash, or easy terms on good security. Address John E. Haynes, Seager, N. Y. Owner will rent by the year after March 1.

No. 1077 — Farm of 80 acres; located $\frac{1}{2}$ mile from Seager P. O.; $5\frac{1}{2}$ miles from railway station at Fleischmann's on line of U. & D. Ry.; 1 mile from school; $2\frac{1}{2}$ miles from Protestant churches, 6 miles from cheese factory and milk station, 8 miles from butter factory. Highways, good. Nearest large village, Margaretville, $8\frac{1}{2}$ miles distant, reached by highway. Surface of farm, slightly rolling. Altitude, 2,000 feet. Soil, clay loam. Acres in meadow, 23; in natural pasture, 23; in timber, 24, maple, beech, birch and basswood. All tillable except timber land. Fruit, apples, pears, plums and cherries. Best adapted to buckwheat, oats, corn, potatoes, timothy and clover. Fences, stone, good condition. House, 24x30, fair condition. Outbuildings: barn, 30x60, fair condition. Watered by spring and brook. Occupied by tenant. Reason for selling, owner a woman and cannot attend to it. Price, \$2,000. Terms \$800 down, balance on mortgage. Address Mary LaMoure, Seager, N. Y.

No. 1078 — Farm of 116 acres; located $\frac{1}{4}$ mile from Seager P. O.; $4\frac{1}{2}$ miles from railway station at Fleischmann's on line of U. & D. Ry.; 50 yards from school, 2 miles from Protestant churches, $6\frac{1}{2}$ miles from butter factory, $5\frac{1}{2}$ miles from cheese factory and milk station. Nearest large village, Margaretville, 8 miles distant, reached by highway. Surface of farm, slightly sloping. Altitude, 1,800 feet. Soil, clay loam. Acres in meadow, 45; in natural pasture, 40; in timber, 31, hemlock, maple, beech and birch. All tillable except wood land. Fruit, apples, pears, cherries and plums. Best adapted to oats, buckwheat, corn, potatoes, rye, wheat, alfalfa, timothy, etc. New house with all modern improvements, bath, heater, etc. Outbuildings: barn, 32x50; barn, 30x36, fair condition; also new barn; ice house, 16x20; milk house, 14x18, fair condition and tenant house, 20x30. Watered, house and barn, by running water; fields, by springs and streams. Occupied by



FIG. 149.—HOUSE ON FARM 1101, TOWN OF ULSTER, ULSTER COUNTY.



owner. Reason for selling, owner has other business. Price, \$5,500. Terms, \$2,000 cash, balance on easy terms. Address J. E. Haynes, Seager, Ulster Co., N. Y.

TOWN OF LLOYD
Population 2,803

No. 1079 — Farm of 140 acres; 3 miles from railway station at Lloyd, on line of C. N. E. R. R.; $\frac{1}{2}$ mile from school and church; 5 miles from butter factory and milk station; R. D. Highways, good. Nearest large village, New Paltz, population about 1,200, 5 miles, reached by highway and trolley. Surface of farm, rolling, level and hilly. Altitude, 500 feet. Acres in meadow, 80; in natural pasture, 40; in timber, 20, chestnut, oak, etc.; acres tillable, 100. Fruit, 300 apple, 100 peach, 15 plum, 18 cherry and 2 quince trees, 2,000 grapevines, about 2,200 dewberry bushes and 800 currant bushes. Best adapted to corn, rye, oats, potatoes and fruit. Fences, wire, stone and rail, fair condition. House, 15 rooms, good condition. Outbuildings: large barn, 40x36; 2 hay houses, 18x30; granary; press barn and wagon house, hog house and woodshed. Watered, house and barns by running spring water, fields by springs; $1\frac{1}{2}$ miles from small lake. Occupied by owner. Reason for selling, to close an estate. Price, \$6,000. Terms, \$4,000 down, remainder on mortgage. Address Eugene Relyea, Highland, N. Y.

* No. 1080 — Farm of 68 acres; $2\frac{1}{2}$ miles from Highland P. O.; 3 miles from railway station at Highland, on line of W. S. R. R.; $\frac{1}{4}$ mile from school; $2\frac{1}{2}$ miles from churches, butter factory, cheese factory, milk station and milk condensing plant. Highways, good. State road. Adapted to fruit and dairying. Acres in meadow, 8; in timber 12, chestnut, etc. Fruit, apples, pears, berries, 1,000 grapevines. Fences, fair condition. House, 12 rooms, fair condition. Good barn. Watered, house by cistern, barn by wells, fields by stream. This farm is $\frac{1}{4}$ mile from Hudson river. Occupied by owner. Reason for selling, owner in other business. All stock and implements are included in price. Price, \$5,900. Terms, $\frac{1}{2}$ cash. Address Edgar Elmendorf, agent, Highland, N. Y.

* No. 1081 — Farm of 117 acres; 4 miles from New Paltz, on line of N. Y.,

N. H. & H. R. R.; $\frac{1}{8}$ mile from school; 2 miles from churches, butter factory, cheese factory, milk station and milk condensing plant. Highways, good. Surface of farm, mostly level, $\frac{2}{3}$ of farm tillable. Fruit, apple orchard, some grapes. Best adapted to general farming and dairying. House, 16 rooms, porch, good condition. Barn, 90 feet long; silo, ice house. Running spring water to house and barns. Occupied by tenant. Reason for selling, owner wishes to retire. Price, \$7,000. Terms, moderate. Owner will rent with option to buy. Address Edgar Elmendorf, Highland, N. Y.

* No. 1082 — Farm of 20 acres; $2\frac{1}{2}$ miles from Highland P. O. and railway station, on line of N. Y. C. & H. R. R. R.; $\frac{1}{8}$ mile from school; $2\frac{1}{2}$ miles from churches; 2 miles from butter factory, cheese factory, milk station and local markets. Altitude, 600 feet. All tillable. Fruit, 1,000 grapevines, berries, pears, etc. Best adapted to small fruit. Fences, good wire. House, 10 rooms and porch. Outbuildings: moderate-sized barn, fair condition. Watered, house by running spring, barn by well. Hudson river near farm. Occupied by owner. Reason for selling, owner has other property. Price, \$6,300. Terms, part cash. Address Edgar Elmendorf, agent, Highland, N. Y.

* No. 1083 — Farm of 66 acres; $1\frac{1}{2}$ miles from Highland P. O. and railway station, on line of N. Y. C. & H. R. R. R.; $\frac{1}{4}$ mile from school; $1\frac{1}{2}$ miles from churches. Highways, State road. Acres in meadow, 17, all tillable. Fruit, 700 peach trees, currants, grapes, berries and one apple orchard. Best adapted to fruit, poultry and cattle. Fences, in good condition. House, 7 rooms, fair condition. Barn, in good condition. Watered by artesian well. Hudson river 1 mile from farm. Occupied by owner. Reason for selling, owner has another farm. Price, \$8,500. Terms, part cash. Price includes farm implements. Address Edgar Elmendorf, agent, Highland, N. Y.

TOWN OF MARBLETOWN
Population 4,713

* No. 1084 — Farm of 110 acres; located $\frac{1}{2}$ mile from High Falls P. O.; $1\frac{1}{2}$ miles from railway station at High Falls, on line of O. & W. Ry.; $\frac{1}{2}$ mile from school and Protestant churches; $1\frac{1}{2}$

* Indicates farm is in hands of agent or real estate dealer.

miles from milk station. Highways, State road. Surface of farm, greater part level. Altitude, 600 feet. Soil, good for fruit. Acres in meadow, 85; in natural pasture, 25. Acres tillable, 85. Fruit, apples, peaches and other choice fruit. Fences, wire and stone. House, 9 rooms, good condition. Outbuildings in poor condition. Watered, house and barn by well, fields by brook. Occupied by owner. Reason for selling, ill health of owner. Price, \$3,600. Terms, $\frac{1}{2}$ cash. Address The Catskill Mountain and Hudson River Land Agency, Kingston, N. Y.

* No. 1085 — Farm of 43 acres; located 1 mile from Stone Ridge P. O.; $2\frac{1}{2}$ miles from railway station at High Falls, on line of O. & W. Ry.; 1 mile from school and churches. Highways in good condition. Nearest city, Kingston, 14 miles distant, reached by rail and highway. Surface of farm, gently rolling. Altitude, 300 feet. Soil, gravelly loam. Acres in meadow, 20; in natural pasture, 10; in timber, 13, oak and chestnut. Acres tillable, 30. Fruit, 50 apple trees. Best adapted to rye, corn, vegetables and fruit. Fences, wire, good condition. House, 7 rooms, large, good condition. Outbuildings: large and in good condition. Watered, house by well, barns and fields by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$3,200. Terms, $\frac{1}{2}$ cash. Address The Catskill Mountain & Hudson River Land Agency, Kingston, N. Y.

* No. 1086 — Farm of 137 acres; located $\frac{1}{4}$ mile from Cottekill P. O.; $\frac{1}{4}$ mile from Cottekill railway station, on line of O. & W. Ry.; $\frac{1}{2}$ mile from school and churches; 2 miles from Catholic church; $\frac{1}{2}$ mile from milk station. Highways in good condition. Nearest city, Kingston, 8 miles distant, reached by rail and highway. Surface of farm, level. Altitude, 250 feet. Soil, loam. Acres in meadow, 100; in natural pasture, 30; in timber, 7, oak and chestnut. Acres tillable, 100. Fruit, apple orchard. Best adapted to corn, hay, oats, potatoes, rye and wheat. Fences, wire and stone. House, large, 10 rooms. Outbuildings: large barn and other outbuildings necessary for size of farm. Watered, house and barn by well, fields by spring. Occupied by owner. Reason for selling, to

close an estate. Price, \$10,000. Terms, $\frac{1}{2}$ cash. Address The Catskill Mountain & Hudson River Land Agency, Kingston, N. Y.

TOWN OF MARLBOROUGH

Population 3,841

* No. 1087 — Farm of 85 acres; located 3 miles from Marlborough P. O., R. D. and railway station, on line of West Shore R. R.; $\frac{1}{4}$ mile from school; 3 miles from churches of nearly all denominations. Highways, good. Nearest city, Newburgh, population, 27,805, 9 miles distant, reached by rail and highway. Surface of farm, level and rolling. Soil, sandy loam. Acres in meadow, 15; in natural pasture, 7. All tillable. Fruit, 1,500 apple trees, 2,500 pears, 7,000 grapevines, 20,000 currant bushes, 100 cherry trees, 180 plums, 150 quince, 8,000 strawberry plants. Best adapted to fruit. Fences, wire and stone, in good condition. House, 12 rooms, in fine condition. Outbuildings: hay barn, horse stable, cow stable, machine shop with steam engine, spray mixture plant, corn crib, root cellar, smoke house, garage, tool house, etc. Watered: house by well and cistern, barns by well, fields by brook and springs. Occupied by owner. Reason for selling, old age of owner. Price, \$17,500. Terms, $\frac{1}{2}$ cash. Address Wescott & Co., Inc., agents, Newburgh, N. Y.

TOWN OF NEW PALTZ

Population 3,025

No. 1088 — Farm of 125 acres; $2\frac{1}{2}$ miles from New Paltz. Good soil, adapted to fruit and vegetables. 13 acres of timber, 80 acres of meadow, 15 acres of fruit, 20 acres pasture. 5 miles from Lake Mohonk. Large house, 14 rooms, nearly new. Modern improvements. 3 good barns, 2 hen houses and other outbuildings, all in good condition. Running water through house, bath, fire protection. Price, \$8,000. Terms, part cash. Address D. W. Corwin, New Paltz, N. Y., R. D. 2.

* No. 1089 — Farm of 180 acres; located 3 miles from New Paltz P. O. and railway station, on line of Wallkill Valley R. R.; 1 mile from school; 3 miles from churches and milk station. Highways, State road. Nearest village, New Paltz, population 1,230, 3 miles distant,

* Indicates farm is in hands of agent or real estate dealer.

reached by State road. Surface of farm, slightly rolling. Soil, clay loam and black soil. Acres tillable, 125. Fruit, varieties for family use. Best adapted to hay, grain and dairy farm. House, 7 rooms, in good condition. Large barn and silo, nearly new. Watered: house by well, barns by wells, fields by springs and brook. This farm is 2 miles from the Shawangunk Mountains. Reason for selling, owner lives in another section. Price, \$5,000. Terms, $\frac{1}{2}$ cash. Elting Harp, agent, New Paltz, N. Y.

* No. 1090 — Farm of 100 acres; located $2\frac{1}{2}$ miles from New Paltz P. O. and railway station, on line of Wallkill Valley R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches; $2\frac{1}{2}$ miles from milk station. Highways, good. Nearest village, New Paltz, population 1,230, $2\frac{1}{2}$ miles distant, reached by highway. Surface of farm, slightly rolling. Altitude, 300 feet. Soil, loam and black soil. Acres tillable, 90. Fruit, 150 trees, pears, cherries, plums, etc. Best adapted to hay, grain and fruit. House, 9 rooms, in good condition. Outbuildings, barn, hay barn, wagon house, granary, in good condition. Watered: house and barns by gravity system, fields by springs and brook. Price, \$5,000. Terms, $\frac{1}{2}$ cash. Address Elting Harp, agent, New Paltz, N. Y.

* No. 1091 — Farm of 18 acres; $1\frac{1}{2}$ miles from railway station at Lloyd; $\frac{1}{2}$ mile from school; $\frac{1}{2}$ mile from churches; 2 miles from milk station. Nearest village, New Paltz, population 1,230, $2\frac{1}{2}$ miles distant, reached by trolley or highway. Surface of farm, level. Soil, gravelly loam and black soil. Fruit, 50 apple trees. Best adapted to celery, cabbage, onions, all garden truck and fruit. House, 6 rooms, in fair condition. Outbuildings, barn, wagon house, granary, in fair condition. Watered: house and barns by well, fields by brook. Reason for selling, owner unable to look after same. Price, \$1,800. Terms on application. Address Elting Harp, agent, New Paltz, N. Y.

TOWN OF ROCHESTER

Population 2,760

No. 1092 — Farm of 143 acres; 3 miles from Mombaccus P. O.; $6\frac{1}{2}$ miles from railway station at Kerhonksen, on line

of O. & W. R. R.; $1\frac{1}{4}$ miles from school; $\frac{3}{4}$ mile from church; $6\frac{1}{2}$ miles from milk station. Highways, hilly, but good. Nearest city, Kingston, population 25,000, 26 miles distant, reached by rail. Surface, part level and part hilly. Soil, mostly gravelly loam. Acres in meadow, 20; in orchard and natural pasture, 65; in timber, 58, chestnut, hickory and oak; acres tillable, 85. Fruit, about 375 trees, mostly apple. Best adapted to hay and fruit. Fences, wire and stone wall, in good condition. House, 24x38, wings, 15x31, and 10x12, in good condition. Barn, 27x70, with large shed and stable attached; carriage house, 22x26; all in good condition. Watered by well and spring. Fine sites for 3 small fish ponds, never-failing spring. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$4,000. Terms, $\frac{1}{2}$ cash, balance on mortgage at 5%. Address H. D. & S. E. Brodhead, Kerhonksen, N. Y.

* No. 1093 — Farm of 225 acres; located 2 miles from Kyserike P. O. and railway station, on line of O. & W. Ry.; $\frac{1}{2}$ mile from school, Catholic and Protestant churches, 2 miles from butter factory and milk station. Highways, good country roads. Nearest city, Kingston, 14 miles distant, reached by rail. Surface of farm, nearly level. Altitude, 400 feet. Soil, rich loam. Acres in meadow, 200; in natural pasture, 10; in timber, 15, all kinds of native trees. Acres tillable, 200. Fruit, apples. Best adapted to hay and grain. Fences, wire and wood, good condition. House 12 rooms, good condition. Outbuildings, large and in best of repair. Watered, house and barn by wells, fields by stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$12,000. Terms, easy. Address The Catskill Mountain & Hudson River Land Agency, Kingston, N. Y.

TOWN OF SAUGERTIES

Population 9,632

No. 1094 — Farm of 100 acres; 2 miles from West Camp P. O. and railway station, on line of W. S. R. R.; $\frac{1}{4}$ mile from school; 1 mile from Reformed church; 2 miles from Lutheran church; 40 rods from Methodist church; R. D. 1

* Indicates farm is in hands of agent or real estate dealer.

from Saugerties. Highways, good. Nearest village, Saugerties, population 4,000, distant 4 miles, reached by rail and highway. Occupied by tenant. Surface, rolling and level. Soil, meadow clay loam, highland fine soil but stony. Acres in meadow, 45; natural pasture, 10; timber, 5, oak, hemlock, cedar, maple, etc.; acres tillable, 90. Fruit, 200 apple trees and a few pear trees and other small fruit. Best adapted to hay, corn, rye and other grains. Fences, wire, wood and stone, in poor condition. House, 12 rooms and closets, good condition; tenant house, 7 rooms, good condition. Outbuildings, main barn, 50x50, good condition; wood house and shop; carriage house; granary; ice house; and other small buildings; all in good condition. Watered, house and barns by well and cistern, fields by springs. Two and one-half miles from Hudson river; Kaaterskill creek, $\frac{3}{4}$ mile distant. This place is easy of access from all points, both by boat and rail. Eight miles from Catskill on the old Kings road, pleasantly situated in a most excellent neighborhood. Price and terms, on application. Reason for selling, to settle an estate. Address Dr. R. Crawford, Saugerties, N. Y.

No. 1095 — A tract of land of about 40 acres; 8 miles from Kingston, population 25,000; 6 miles from Saugerties, population 4,000; $4\frac{1}{2}$ miles from railway station at Saugerties, on line of W. S. R. R.; $3\frac{1}{2}$ miles, state road, 1 mile tram road, good; 3-hour ride by rail from New York City; $2\frac{1}{2}$ miles from railway station at Mt. Marion, on line of W. S. R. R.; 15-minute walk from school; R. D. Situated midway between the Catskill Mountains and the Hudson river, on an elevation which brings it in full view of the Catskills and other points of interest in the Hudson Highlands. This property is easily reached by rail or highway and is suitable for a summer residence or for a group of cottages for summer homes, or for the country seat of a city man who desires a place of rare natural beauty and healthfulness. The entire place is well covered with a growth of fine timber of different kinds, arranged naturally in groves and of sufficient quantity for the construction of such rustic buildings as would be desired. In addition to this there is a large quantity of blue sand-

stone which has been quarried, from which could be constructed foundations or first stories of bungalows or cottages. There is, almost in the center of the property, an open meadow field, comparatively level and free from brush on which could be raised an abundance of hay and vegetables for use, or pleasure grounds could be constructed here. The advantages of this property for a summer home or country seat must be seen to be appreciated. Several never-failing springs furnish an abundant supply of the purest water. There is a stream of considerable size close to the border of the property from which, by hydraulic force, water could be distributed over the premises to any point desired, at a very low cost. The road leading to this property is a state road, fine condition. The new park which has just been laid out in the foothills of the Catskill Mountains will be but a short distance from these premises. There are no buildings on the property. Reasons for selling, owner has other business and lives too far away to look after property. Price, \$800. Terms, \$500 down, balance on mortgage at $4\frac{1}{2}\%$. Address Miss M. D. Wickham, 476 Yates street, Albany, N. Y. Owner will rent the whole or any part of this property for camping sites.

No. 1096 — Farm of 50 acres; 1 mile from Saxton P. O.; 6 miles from Saugerties. Soil, good and well adapted to grass, grain and vegetables. Large deposits of bluestone quarries now being opened; a rare opportunity for some city contractor to secure the same as a valuable investment. House, good size, needs repair. Large barn and shed, in fair condition. Watered by springs and stream. Fences, fair. Will include wood lot of 8 acres and sell all for \$1,300. Terms, cash. Address H. B. Lasher & Bros., Quarryville, N. Y.

No. 1097 — Place of about $\frac{1}{3}$ acre; $\frac{1}{4}$ mile from Malden-on-Hudson P. O.; $\frac{1}{8}$ mile from railway station at Malden, on line of W. S. R. R.; 2-minute walk from school; 2 miles from high school; $\frac{1}{4}$ mile from church. Highways, good. Nearest large village, Saugerties, population about 4,000, 2 miles distant, reached by rail, boat and stage; city of Kingston, 10 miles distant, reached by rail and highway; Catskill, 10 miles distant,

tant reached by rail and highway, about 3 hours ride by rail from New York. Also night boat to New York. Surface, rolling. Soil, good for gardening. Fruit, pears, plums, apples and grapes. Fences, smooth wire. House, 5 rooms attic and cellar, newly roofed and painted, fair condition. Outbuildings: chicken house; coal and wood house; fair condition. Watered by well and cistern. Catskill Mountains, 8 miles distant; Hudson river, $\frac{1}{2}$ mile distant; both river and mountains can be seen from house. Grocery store and hotel accommodating summer boarders about 3 minutes' walk from house. The village of Malden, in which this property is located, has a population of about 700. Reason for selling, owner lives in another part of State. Price, \$900. Terms, cash. Address David M. Lewis, 473 Yates st., Albany, N. Y.

No. 1098 — Place of 10 acres; $\frac{1}{4}$ mile from West Camp P. O. and railway station, on line of W. S. R. R.; $\frac{1}{4}$ mile from school and church; $1\frac{1}{2}$ miles from butter factory. Nearest large villages, Saugerties, population about 4,000, $3\frac{1}{2}$ miles distant, reached by rail and highway, and Catskill, population about 5,000, 8 miles, reached by rail and highway. Surface of farm, rolling, with high rock ridge overlooking Hudson river. Altitude, about 300 feet. Soil, gravelly and clay loam. Acres in meadow, 3; in natural pasture, 1; in timber, $\frac{1}{4}$, cedar grove; acres tillable, 8. Fruit, 60 apple trees, $\frac{1}{4}$ acre of Concord grapes, besides cherries and plums. Adapted to all kinds of vegetables, grains, alfalfa and small fruits. Fences, stone, wire and wood, fair condition. House, 8 room., 18x32, outside summer kitchen, 12x14, house has new cedar shingling. Outbuildings: barn, 26x30, with ell, 18x22, shed, wagon house, 12x18; and hog house, 12x12. Watered, house by never-failing spring and cistern; fields by spring near center of farm. This farm is a short distance from Hudson river, about 10 minutes' walk. Catskill Mountains are about 8 miles from farm; Kaaterskill and Old Mountain House in view. This would make a good poultry form. Occupied by tenant. Reason for selling, owner has

other business. Price, \$2,500. Terms, \$1,500 cash, balance on time or will sell on contract. Address E. F. Youngs, West Camp, N. Y., Box 25.

No. 1099 — Country place of about $\frac{1}{2}$ acre, located 30 rods from Glasco P. O.; 2 miles from railway station at Mt. Marion and about 4 miles from railway station at Saugerties on line of West Shore Ry.; 12 rods from school, Methodist church next door. Highways, good. Nearest large city, Kingston, 10 miles distant, population about 25,000; nearest large village, Saugerties, population about 4,000, reached by rail and highway. Surface, level. Soil, sandy, all tillable. Fruit, 8 apple trees, 6 pear trees, 12 peach trees, 2 cherry trees; also grapes and currants. Best adapted to garden vegetables. Fences, shrub fence in front; line fence, net wire. House, brick, large, 2 stories, 12 rooms, good condition, large piazza. Outbuildings: barn, large, will accommodate 6 horses and outfits; shed, wagon house and hen house. Watered by well and cistern. Five minutes' walk from house to Hudson river; Catskill Mountains 12 miles distant. Occupied by owner. Reason for selling, owner wishes to move elsewhere. This property is situated on a corner in the center of the village of Glasco, which has a population of about 1,500 and would be a very pleasant place for a summer home or boarding house, having large lawns, etc. About 100 miles from New York City. Price, \$3,500; terms, $\frac{1}{2}$ cash. Address Peter J. Turch, Saugerties, N. Y., R. D. 4.

* No. 1100 — Farm of 155 acres located 6 miles from Kingston P. O.; 3 miles from railway station at Katrine, on line of W. S. Ry.; $\frac{1}{8}$ mile from school and churches, 6 miles from butter factory, cheese factory and milk station. Highways, state road. Surface of farm, gently rolling. Altitude, 200 feet. Soil, rich loam. Acres in meadow, 75; natural pasture, 25; in timber, 55, second growth. Acres tillable, 75. Fruit, 500 apple, 300 pear and 400 peach trees. Best adapted to hay, corn, wheat, oats, celery and vegetables. Fences, wire, good condition. House, 14 rooms, colonial style. Outbuildings: large barns and outbuildings, fair condition. Watered, house and

* Indicates farm is in hands of agent or real estate dealer.

barn by well, fields by springs and brook. Occupied by owner. Reason for selling, to close an estate. Price, \$15,000. Terms, cash. Address The Catskill Mountain & Hudson River Land Agency, Kingston, N. Y.

TOWN OF ULSTER

Population 3,554

* No. 1101 — Farm of 207½ acres, located 1 mile from Kingston P. O., R. D. 1, and railway station on line of West Shore, U. & D., Wallkill Valley, N. Y. O. & W. R. R.; 1 mile to school; 1 to 3 miles to churches of all denominations. Highways, state road. Nearest city, Kingston, population 25,908, 1 mile distant, reached by highway or trolley.

Surface of farm, level, hilly and rolling. Acres in meadow, 75; in natural pasture, 60. All tillable. Fruit enough for family use. Best adapted to grain, fruit, hay, etc. Fences, wall and wire, in fair condition. House, 10 rooms, in good condition. Outbuildings: stable 110x66, ice house, milk house, granary, hen house of concrete, two silos, large hay barn, also main barn equipped to produce certified milk. Watered, house by well and cistern, barns by well, windmill, fields by springs, pond and brook. This farm is 3 miles from the Hudson river. Price, \$35,000. Terms, \$10,000 to \$15,000 cash, balance on mortgage. Address Mrs. C. R. Knapp, 132 Dana ave., Albany, N. Y.

WARREN COUNTY

Area, 940 square miles. Population, 32,223. Annual precipitation, 32.41 inches. Annual mean temperature, 45.2°. Number of farms, 1,865. County seat, Lake George.

This county is located in the eastern part of the state and is bounded on the east by Lake George and is intersected by the upper Hudson River and is partly drained by the Schroon River.

The surface is mountainous and extensively covered with forests of beech, hickory, oak, elm, pine, spruce, sugar maple and hemlock. Many of the mountains and hills are steep and present a broad surface of barren rock. Gneiss and granite are the predominant rocks of the county. Trenton limestone and Potsdam sandstone are found in the southeastern part, also black marble. The valleys are fertile and well adapted to pasture. The soil is largely clay loam along the Hudson and Schroon River Valleys while that in the region of and south of Lake George is sandy and gravelly loam. Crops are reported as follows: Corn, 60,750 bushels; oats, 39,595 bushels; buckwheat, 30,524 bushels; potatoes, 163,673 bushels; hay and forage, 25,345 tons. Lumber is one of the leading products of the county. The total valuation of farm property is \$6,589,308, an increase of 61 per cent. during the past ten years. Domestic animals reported are dairy cows, 5,387; horses, 3,221; swine, 2,070; sheep, 12,111; poultry, 48,354; production of milk, 2,396,268 gallons; dairy products amounted to \$170,423. The county is traversed by the Adirondack division of the Delaware and Hudson railroad and one of its branches from Fort Edward to Lake George. Trolley lines from Albany, Troy, Schenectady and Saratoga Springs extend up through the county as far north as Warrensburg, through Lake George. Union and graded schools in the villages and towns, an academy at Glens Falls, with 111 district schools afford the best of educational facilities for the farmer. There are 70 miles of state and county roads, 791 miles of improved highways. Milk stations and creameries are located at Glens Falls and Lake George. In the county are three granges and one county fair society. Much of the increase of the value of farms and farm buildings is brought about by the large number of men of means purchasing tracts for summer homes and cottages in the mountains and along the lake shores.

TOWN OF BOLTON

Population 1,518

No. 1102 — House and lot, ¾ acre; in Bolton; 8 miles from railway station at Lake George, on line of D. & H. R.

R.; ¼ mile from school; 1 mile from church. Highways, good. State road. Nearest large village, Bolton Landing, population about 350, 1½ miles distant, reached by highway. House, 1½ stories, 6 rooms, in good condition. Barns, 26x

* Indicates farm is in hands of agent or real estate dealer.



FIG. 150.—BUILDINGS ON FARM NO. 1101, TOWN OF ULSTER, ULSTER COUNTY.



FIG. 151.—DAIRY BARN ON FARM NO. 1101, TOWN OF ULSTER, ULSTER COUNTY.

36, in fair condition. Watered by well. $\frac{1}{4}$ mile from Lake George. This would be a good location for city boarders. Occupied by owner. Reason for selling, owner wishes to get a farm. Price, \$2,000. Terms, cash, or will exchange for small farm. Address John Bennett, Bolton, N. Y.

No. 1103 — Farm of 170 acres, located 4 miles from P. O.; 10 miles from railway station at Warrensburg, on line of D. & H. R. R.; $\frac{1}{4}$ mile from school; 2 miles from churches. Highways somewhat hilly but good. Surface of farm, some stone but can mow with machine. Soil, fair. Acres in meadow, 21; in natural pasture, 40; in timber, 109, pine, hemlock and maple. Acres tillable, 30. Fruit, apples and plums. Best adapted to potatoes, corn and oats. Fences, stone wall and wire, fair condition. Outbuildings: barn, 30x46; shed, 20x16; hen house, 13x13. Watered by well, spring and brook. This farm is $1\frac{1}{2}$ miles from Schroon river and $4\frac{1}{2}$ miles from Lake George. Occupied by tenant. Reason for selling, owner lives in village. Price, \$2,500. Terms, \$500 down, balance easy. Address, Chas. Davis, Bolton Landing, N. Y.

TOWN OF CHESTER

Population 1,721

No. 1104 — Farm of 100 acres; $2\frac{1}{2}$ miles from Chestertown P. O.; $2\frac{1}{2}$ miles from railway station at Riverside, on line of Adirondack R. R.; $\frac{3}{4}$ mile from school; $2\frac{1}{2}$ miles from churches. Highways, good; macadamized road. Nearest large village, Chestertown, population 600, $2\frac{1}{2}$ miles distant, reached by highway. Surface, rolling. Soil, sandy loam. Acres in meadow, 35; in natural pasture, 35; in timber, 30, pine, second growth poplar, balsam, tamarack and some hard wood; acres tillable, 50. Fruit, 50 apple trees. Best adapted to potatoes, buckwheat, corn and oats. Fences, rail and board, fair condition. House, 2 stories, 28x30, with wing, in good condition. Barn, 30x40, with sheds, in good condition. Watered by well, also fine spring water comes into house by pump. This is a good place to keep summer boarders; good place on lake front for nearly a mile. Unoccupied. Reason for selling, to develop lake front. Price, \$5,000. Terms, cash, or will try

to suit purchaser. Address Dr. F. E. Aldrich, Chestertown, N. Y. Owner will rent.

No. 1105 — Farm of 120 acres; 2 miles from South Horicon P. O.; 10 miles from railway station at Warrensburg, on line of Adirondack R. R.; 2 miles from school; 3 miles from churches. Highways, good. Surface of farm, rolling. Altitude, 700 feet. Soil, sandy loam. Acres in meadow, 30; in natural pasture, 30; in timber, 60, second growth and first growth hard wood; acres tillable, 60. Fruit, about 100 apple trees. Best adapted to oats, buckwheat, corn and potatoes. Fences, rail, fair condition. House, 2 stories, fair condition. Outbuildings: barn, 30x40, with good frame, sheds attached. Watered by spring. This farm borders on Schroon Lake. About 400 sugar maples on farm. Daily mail route from Horicon to Warrensburg. Occupied by owner. Reason for selling, ill health of owner. Price, \$2,800. Terms, cash. Address Alonzo McKinstry, River Bank, N. Y.

No. 1106 — Farm of 80 acres; $2\frac{1}{2}$ miles from Chestertown P. O.; $4\frac{1}{2}$ miles from railway station at Riverside, on line of Adirondack R. R.; $\frac{1}{2}$ mile from school; $2\frac{1}{2}$ miles from churches. Highways, good, macadamized. Surface of farm, rolling. Altitude 850 feet. Soil, sandy loam, good. Acres in meadow, 30; in natural pasture, 40; in timber, 10, second growth pine and hard wood; acres tillable, 60. Fruit, about 100 apple trees. Best adapted to buckwheat, oats, corn, potatoes and hay. Fences, rail, good condition. House, 18x26, with kitchen attached, good condition. Outbuildings: barn, 30x40; carriage house, 26x36; good condition. Watered by well and springs. Farm borders on Loon Lake. Occupied by owner. Reason for selling, owner wants to go into other business. Price, \$2,200. Terms, \$1,200 down, remainder on bond and mortgage. Address Sidney Hayes, Chestertown, N. Y.

TOWN OF HAGUE

Population 1,043

No. 1107 — Farm of 150 acres, located 12 miles from railway station at Ticonderoga, on line of D. & H. R. R.; R. F. D. passes farm; $\frac{3}{4}$ mile from school; 2

miles from churches. Highways in fair condition. Surface of farm, hilly. Soil, sandy loam. Acres in meadow, 20; in natural pasture, 50; balance in timber, soft and hard wood. Acres tillable, 20. Fruit, apples. Best adapted to corn, potatoes and hay. Fences, wire, good condition. House, fair size and condition. Three barns, one 40x40. Watered by springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$2,500 including stock and tools. Address John Brasted, Hague, N. Y.

No. 1108 — Farm of 200 acres, located 5 miles from P. O.; R. F. D. $\frac{1}{4}$ mile from farm; 10 miles from railway station at Ticonderoga, on line of D. & H. R. R.; 1 mile from school; 5 miles from churches. Highways hilly. Surface of farm hilly. Soil, sandy loam. Acres in meadow, 30; in natural pasture, 60; in timber, 100, hard wood, spruce and pine. Acres tillable, 50. Fruit, apples. Best adapted to corn, potatoes and hay. Fences, woven wire. Good house. Three good barns. Watered by spring. Occupied by owner. Reason for selling, advanced age. Price, \$1,500. Address Harold Carpenter, Summit, N. J.

TOWN OF JOHNSBURG

Population 2,315

No. 1109 — Farm of 320 acres; 3 miles from North Creek P. O. and railway station on line of D. & H. R. R.; $1\frac{1}{2}$ miles from school, Methodist and Baptist churches; 3 miles from Catholic church. Highways, hilly but in good condition. Surface of farm, fairly level. Soil, clay loam. Acres in meadow, 70; natural pasture, 50; timber, 200, poplar, spruce and hard wood; acres tillable, 100. Fruit, about 150 apple trees. Best adapted to potatoes, corn, oats and rye. Fences, wire, in good condition. House, 22x30, in good condition. Outbuildings: 3 barns, one 30x40, one 20x60 and one 20x40; ice house, 12x18; hog house, 16x18, all in good condition. Watered by well and brook. $\frac{1}{2}$ mile from Hudson river. Unoccupied. 13,000 white pine trees have recently been planted. Excellent springs on farm. Reason for selling, owner wishes to retire. Price, \$3,000. Terms, \$1,000 down, remainder secured by mortgage. Owner will sell 110 acres

with buildings and orchard for \$1,500 and rent the other lots at reasonable price. Owner will rent for cash. Address Daniel Hurley, 18 Grove ave., Glens Falls, N. Y.

No. 1110 — Farm of 75 acres, located 3 miles from Baker's Mills P. O.; 10 miles from railway station at North Creek, on line of D. & H. R. R.; $\frac{1}{4}$ mile from Protestant churches. Highways good. Surface of farm, rolling. Altitude about 1,900 ft. Some timber. Fruit, apples. Best adapted to potatoes, corn, oats and buckwheat. Fences, board, rail and pole. House 20x30. Outbuildings: barn, 30x40; shed, 25x40, good condition. Watered by well, spring and brook. Good fishing. Occupied by owner. Reason for selling, advanced age of owner. Price, \$2,000. Terms, cash. Large sugar orchard. Address Mrs. Frances A. Wheeler, Baker's Mills, N. Y.

* No. 1111 — Farm of 320 acres, located 3 miles from North Creek P. O. and railway station, on line of D. & H. R. R.; $\frac{1}{2}$ mile from school; 3 miles from milk station. Surface of farm rolling. Best adapted to corn, potatoes, alfalfa, oats and buckwheat. House, 22x30, $1\frac{1}{2}$ stories. Outbuildings: barn, 30x40; barn, 20x60, good condition. Unoccupied. Price, \$3,500. Terms easy. Address E. Brionne & Co., 23 Duane st., New York, N. Y. Owner will rent.

TOWN OF QUEENSBURY

Population 2,667

No. 1112 — Farm of 80 acres; 1 mile from Queensbury P. O.; R. D. 1; 5 miles from railway station at Glens Falls, on line of D. & H. R. R.; 1 mile from school and Methodist church; 5 miles from milk station. Highways, good. Nearest large city, Glens Falls, population 16,000, 5 miles distant, reached by highway. Surface, sloping to south. Soil, sandy loam. Acres in meadow, 7; natural pasture, 25; timber, 25, chestnut, pine and oak, second growth; acres tillable, 35. Fruit, 20 apple trees. Best adapted to potatoes and fruit. Watered by well and pond. Fences in poor condition. No buildings except hen house. Unoccupied. Reason for selling, owner a

* Indicates farm is in hands of agent or real estate dealer.

woman and cannot attend to farm. Price, \$2,200. Terms, easy. Owner will rent for \$80 per acre. Address Harriet A. Bentley, 11 Pine street, Glens Falls, N. Y.

No. 1113—Farm of 71 acres; located 4 miles from Lake George P. O., R. D. 1; 4 miles from railway station at Lake George, on line of D. & H. R. R.; 30 rods from school; 3 miles from Presbyterian church; 8 miles from milk station. Highways, somewhat hilly but good. Nearest large village, Lake George, 4 miles distant, reached by highway. Surface of farm, rolling. Altitude, about 500 feet. Soil, loam. Acres in

meadow, 46; in natural pasture, 25. Acres tillable, 46. Fruit, apples, cherries, plums, pears, peaches, grapes, berries and currants. Best adapted to corn, oats, potatoes, hay and garden truck. Fences, rail and wire, good condition. House, 2 stories, slate roof, 10 rooms, good condition. Outbuildings: barn, 26x80, basement, fair condition; wagon house, 20x26; shop, 10x26; hen house. Watered by well, brook and springs. This farm is 1/2 mile from Lake George. Occupied by owner. Reason for selling, ill health of owner's wife. Price, \$3,500. Terms, 1/2 cash, balance on mortgage. Address Chas. A. Dickinson, Lake George, N. Y., R. D. 1, Box 27.

WASHINGTON COUNTY

Area, 861 square miles. Population, 47,778. Annual precipitation, 35.6 inches. Annual mean temperature, 46.2°. Number of farms, 3,564. County seat, Hudson Falls.

This county is located in the eastern part of the state bordering on Vermont. Lake George bounds the county on the northwest and the Hudson River on the west. It is drained by the Hoosic, Pawlet and Poultney Rivers and by the Battenkill and Weed Creeks. Lake Champlain forms a part of the eastern boundary of the county.

The surface is hilly and mountainous. Along the eastern border extends a range of high hills composed wholly of shale, sand and clay. These hills by the action of rain and weather have deposited a rich deep loam in the valleys and lower uplands. The fertility of this rich loam is constantly being renewed by this same weather agency. Forests of beech, elm, sugar maple, spruce and hemlock and other trees cover a large part of the county. Among its minerals are iron ore, graphite, slate and water lime. The staple crops of the county are exceedingly good, being corn, 597,342 bushels; oats, 659,913 bushels; buckwheat, 52,264 bushels; rye, 70,016 bushels; potatoes, 1,375,013 bushels; hay and forage, 121,417 tons; considerable flax is also grown in the county. The value of all farm property is \$18,459,934, showing a marked increase over the value of 1900. The average price of improved land is \$31.20 per acre. There are reported, dairy cows, 28,169; horses, 10,070; swine, 12,859; sheep, 36,752; poultry, 167,477; production of milk, 13,521,120 gallons; total receipts from the sale of dairy products, \$1,327,575.

The county is intersected by branches of the Delaware and Hudson railroad and by the Champlain canal. Whitehall is the principal town of the county and has large manufacturing interests, which use large quantities of lumber. There are 224 school districts in the county; 31 miles of state roads and 1,370 miles of graded and improved highways. Twenty-one milk stations and factories take care of the milk interests of the county and 21 agricultural organizations contribute to the agricultural and farming interests.

TOWN OF ARGYLE

Population 1,806

No. 1114—Farm of 135 acres; located 4 miles from Argyle P. O., R. D. 2; 8 miles from railway station at Greenwich, on line of G. & J. R. R.; 1 mile from school, butter factory, cheese factory and Presbyterian church; 8 miles from milk station. Highways, good. Surface of farm, rolling. Soil, gravel loam. Acres in meadow, 25; in natural pasture,

20; in timber, 4. Acres tillable, 100. Fruit, 100 apple trees. Best adapted to potatoes, corn, etc. Fences, good. Fine brick house. Outbuildings: medium size, fair condition. Watered by spring and creek. This farm is 5 miles from Cosayuna Lake. Occupied by owner. Reason for selling, owner going into other business. Price, \$5,000. Terms, 1/2 down. Address John Shaw, Argyle, N. Y., R. D. 2.

* No. 1115 — Farm of 40 acres; located 2 miles from Argyle P. O., R. D. 2; 8 miles from railway station at Fort Edward, on line of D. & H. R. R.; 2 miles from school and Presbyterian church; 1 mile from butter factory and cheese factory; 7 miles from milk station and milk condensing plant. Highways, hilly. Soil, gravel and slate. Acres in meadow, 10; in natural pasture, 8; in timber 2, firewood. Acres tillable, 25. Fruit, 50 apple trees. Best adapted to potatoes, corn, etc. Fences in poor condition. House small. Outbuildings in poor condition. Watered by spring. Unoccupied. Price, \$1,500. Terms, cash. Address Samuel Rouse, agent, Argyle, N. Y.

No. 1116 — Farm of 130 acres; located 2 miles from Argyle P. O., R. D. 2; 8 miles from railway station at Fort Edward, on line of D. & H. R. R.; 3 miles from school; 2 miles from butter factory, cheese factory and Protestant churches; 8 miles from milk station. Highways, good. Surface of farm, rolling. Soil, gravel and clay loam. Acres in meadow, 35; in natural pasture, 25; in timber, 10. Acres tillable, 90. Fruit, 160 apple trees. Best adapted to corn, oats, rye, potatoes and hay. Fences in fair condition. House, good size, brick. Outbuildings in fair condition. Water piped to house and barn. Unoccupied. Reason for selling, owner in other business. Price, \$6,000. Terms, ½ cash. Address Wm. G. Wood, South Glens Falls, N. Y.

TOWN OF CAMBRIDGE Population 1,694

* No. 1117 — Farm of 120 acres; located 1 mile from Cambridge P. O. and railway station, on line of D. & H. Ry.; ½ mile from school; 1 mile from churches. Highways in excellent condition. Surface of farm, level and rolling. Soil, gravel and slate loam. Acres in timber, 20, oak, chestnut, pine. Acres tillable, 90. Best adapted to hay, grain and dairying. Fences in good condition. House, 1½ stories, slate roof, 14 rooms. Outbuildings: barn, 36x40, with basement; shed with hay loft; granary, 20x30; hay barn, 26x40; tenant house and barn; all in good condition. Watered, house and barn by well, fields by springs. Occupied by owner. Price, \$6,000. Terms, ½ cash. Address Frank H. Knox, agent, 51 State street, Albany, N. Y.

No. 1118 — Farm of 101 acres; located 2 miles from Cambridge P. O., R. D. 3; 2½ miles from railway station at Cambridge, on line of D. & H. R. R.; 2 miles from school and churches; 2½ miles from butter factory, cheese factory and milk station. Highways, good. Surface of farm, rolling. Soil, good. Acres in meadow, 20; in natural pasture, 30; in timber, 7, beech, birch, maple and chestnut. All tillable except woodland. Fruit, apples, pears, cherries and plums. Adapted to any crop grown in this climate. Fences, rail, wire and stone, some good, some poor. House, large, 2 stories, excellent condition. Outbuildings: large barn, basement; horse barn and other buildings, all in good condition. Watered by spring and brook. Occupied by owner. Reason for selling, ill health. Price, \$7,500. Terms, ½ down. Address John McEnery, Cambridge, N. Y., R. D. 3.

TOWN OF EASTON Population 2,133

No. 1119 — Farm of 254 acres; 6 miles from Schaghticoke P. O., R. D. 1; 7½ miles from railway station at Schaghticoke, on line of B. & M. R. R.; ½ mile from school; 2 miles from churches, butter factory and milk station; 3 miles from cheese factory. Highways, hilly but good. Nearest city, Troy, 20 miles distant, 7½ miles by highways and remainder by rail. Surface, partly rolling, generally level. Soil, gravel and clay loam. Acres in meadow, 60; in natural pasture, 70; in timber, 18, about 12 acres of first growth pine, oak, maple and beech; acres tillable, 230. Fruit, apples, pears and plums. Adapted to all crops grown in this climate. Fences, wire, new; rail, old. Large colonial house, 18 rooms, needs painting. Outbuildings: 2 large barns, 2 small barns, cribs, wagon house, hog house, sheds, etc., good condition. Watered by spring, well, cistern; running water at barn. This farm is 2 miles from Hudson river. Occupied by owner. Reason for selling, advanced age of owner. Price, \$15,000. Terms, cash. Address Mrs. Maria J. Eddy, Schaghticoke, N. Y.

* No. 1120 — Farm of 100 acres; located 3 miles from Stillwater P. O., R. D.; 5 miles from railway station at Schaghticoke, on line of B. & M. R. R.; ¾ mile from school; 3 miles from butter

* Indicates farm is in hands of agent or real estate dealer.

factory, milk station, Catholic and Protestant churches. Highways in good condition. Nearest large village, Mechanicville, 6 miles distant, reached by highway and trolley. Surface of farm, mostly level. Soil, clay loam. Acres in meadow, 60. All tillable except woodland. A few acres in timber. Best adapted to hay, potatoes, fruit and dairying. Fences, woven wire, good condition. House, 1½ stories, 8 rooms, fair condition. Outbuildings, main barn, new iron roof; cow barn, 14 stanchions; large hay barn, wagon house, ice house and cooler. Watered by wells. Reason for selling, owner lives elsewhere. Price, \$3,000. Terms, ½ cash. Address Frank M. Knox, agent, 51 State street, Albany, N. Y.

TOWN OF GREENWICH

Population 4,227

No. 1121 — Farm of 300 acres; 2 miles from Greenwich P. O. and railway station, on G. & J. R. R.; R. D. 1 from Greenwich. Highways, good. Soil, gravel and slate loam. Acres in meadow, 75; tillable, 175; timber, 50. Fruit, a large variety of good fruit. Adapted to general farming. Altitude, high and healthful. Fences, stone, patent rail and wire, in fair condition. House, 50x30, in good condition, bath room, hot and cold water, newly painted; good tenant house, 3 barns, 32x40 each; enlarged 1 barn, 38x30, in fair condition; good horse barn; new underground cow stable, 36x85, concrete floor, for 40 cows; new silo. Watered, house, barns and fields by running water and springs. This farm is considered a fine stock farm. Price, \$10,000. Terms, reasonable. Owner will sell 200 acres with buildings for \$7,000. Address John Wilson, Jr., Greenwich, N. Y., R. D. 1. Owner will rent.

No. 1122 — Farm of 106 acres; 1½ miles from Greenwich P. O., R. D. 5; 1½ miles from railway station at Greenwich, on line of B. & M. R. R.; ¼ mile from school; 1½ miles from churches, butter and cheese factory and milk station. Highways, good. Nearest village, Greenwich, population, 2,500, 1½ miles distant, reached by rail and highway. Surface, level and rolling. Soil, sand and clay loam. Acres in meadow, 25; natural pasture, 20; timber, 5, pine and hardwood; acres tillable, 90. Fruit, choicest kind, young trees, bearing 4 years. Best adapted to potatoes, corn, oats and rye. Fences, stone wall and

wire, in good condition. Brick house, 48x36, 2 stories, slate roof, 4 cellars, woodshed attached. Outbuildings: 3 barns, 1, 30x40; 1 large cow barn, 1 new barn, holds 30 tons of hay; large ice house; carriage house, hog pen, suitable for 50 hogs; corn house, in good repair. Watered by wells, springs and cistern. Occupied by owner. There is a building that has been used for meat market which could be used as tenant house; also slaughter house suitable for barn. Reason for selling, poor health of owner. Price, \$5,000. Terms, cash. Address O. S. Platt, Greenwich, N. Y., R. D. 5.

No. 1123 — Farm of 260 acres; 2½ miles from Greenwich P. O., R. D. 3; 2½ miles from railway station at Greenwich, on line of G. & J. R. R.; ¾ mile from school; 2½ miles from churches, butter factory, cheese factory and milk station. Highways, State road to Greenwich, ⅓ mile from house. Surface of farm, rolling and level. Acres in meadow, 10; in natural pasture, 40; in timber, 20; acres tillable, 200. Best adapted to corn, oats, rye, potatoes, etc. Fences, in fair condition. House, large, 2 stories, good condition. Outbuildings: 2 large barns and 1 small barn. Watered by spring and brook. Battenkill river on edge of farm. Occupied by tenant. Reason for selling, to close an estate. Price, \$8,000. Terms, mostly cash. Address L. G. Thompson, Greenwich, N. Y.

No. 1124 — Farm of 200 acres; located 2 miles from Cossayuna P. O.; 5 miles from railway station at Salem, on D. & H. R. R.; 1 mile from school; 2 miles from churches, cheese factory and milk station. Highways, good. Surface of farm, rolling. Altitude, 1,100 feet. Soil, Cossayuna loam. Acres in meadow, 65; in natural pasture, 25; in timber, 75. Acres tillable, 100. Fruit, apples, pears, cherries, quinces, currants, gooseberries, etc. Best adapted to oats, corn, rye, potatoes and buckwheat. Fences, stone, rail and wire. House, brick, 40x27, with wing, 30x27; frame house, 24x20, with wing, 20x18, good condition. Outbuildings: barn, 46x48; barn, 46x30, good condition; shed, hog pen, tool house, shop and hen houses. Watered by well, cistern, streams and springs. Occupied by owner. Price, \$7,000. Terms, ½ cash, balance on mortgage. Address Minnie N. Beveridge, Cossayuna, N. Y.

No. 1125 — Farm of 300 acres; located 1 mile from E. Greenwich P. O.; 1 mile from railway station at E. Greenwich, on line of G. & J. R. R.; 1 mile from school; 4 miles from churches; 1 mile from cheese factory and milk station; 8 miles from milk condensing plant. Highways in good condition. Nearest large village, Salem, 4 miles distant, reached by rail and highway. Surface of farm, rolling. Soil, slate loam. Acres in meadow, 60; in timber, 15, pine, chestnut, maple and hemlock. All tillable except woodland. Fruit, apples, pears, plums and cherries. Best adapted to potatoes, corn and grain. Fences, stone walls and wire. House, 12 rooms, 2 stories, brick, good condition. Outbuildings: horse barn, 30x36; 3 hay barns, 36x50, with basement; silo; modern class barn, 30x60. Watered by running water, brook, spring and lake. Occupied by owner. Reason for selling, ill health. Price, \$9,000. Terms, cash. Address D. M. Connor, East Greenwich, N. Y. Owner will rent.

TOWN OF HEBRON

Population 1,599

No. 1126 — Farm of 100 acres; 5 miles from West Hebron P. O., R. D. 2; 9 miles from railway station, on line of D. & H. R. R.; 1 mile from school; 2½ miles from Presbyterian church; 1½ miles from butter factory and cheese factory; 9 miles from milk station; 9 miles from milk condensing plant. R. D. passes farm. Highways, rolling but good. Nearest village, West Hebron, population, 500, reached by highway. Surface of farm, rolling. High altitude. Soil, slate and loam. Acres in meadow, 15; in timber, 20, hard wood, oak and chestnut; acres tillable, 60. Fruit, apples, plums, pears and grapes. Best adapted to potatoes, oats and rye. Fences, wire, rail and stone, good condition. House, 5 rooms, large pantry, clothes closet and hall. Outbuildings: new barn 32x42, slate roof, basement. Watered, house, by well; barns and fields, by springs. Land is worked on shares; house is not occupied. Reason for selling, owner has another farm. Price, \$1,800. Terms, ½ cash. Address John A. Dennison, Salem, N. Y.

TOWN OF SALEM

Population 2,780

No. 1127 — Farm of 187 acres; 4 miles from Shushan; R. D.; 4 miles from Salem. Good stock and grain farm. 10 acres timber. 1½-story house, 40x27, with wing, 16x30, very comfortable and in good repair. Two barns, 26x48; woodshed, 30x20, both good. ½ mile trout brook. Well watered and fenced. Very cheap at price asked, \$2,000. Easy terms. Address Patrick Hughes, Shushan, N. Y., R. D.

No. 1128 — Farm of 100 acres 3 miles from Salem; R. D.; 15 acres of timber; balance tillable land, good for grass, grain and stock raising. Large house, in fair repair. Good barn. Well watered. Fairly well fenced. Price, \$2,000. Terms, to suit purchaser. Address Abner Robertson, Salem, N. Y. Owner will rent.

No. 1129 — Farm of 233 acres; 1 mile east of Shushan, N. Y. This was originally 2 farms and could be divided very easily if desired, as there are ample buildings on each part. On the south portion is a tenant house and barn; on the north portion is the family dwelling, which is a large 2-story building with piazzas, also a number of barns. Each portion has a fine wood lot and plenty of running water. The south boundary line is the Battenkill river. Owner prefers to sell all together, but would divide if necessary. Land in good condition; well fenced and easily worked by all kinds of farm machinery. Price \$45 per acre. Terms, part cash, balance on bond and mortgage, if desired. Address S. A. Binninger, Shushan, N. Y.

* No. 1130 — Farm of 233 acres; located 1¼ miles from Shushan P. O. and railway station, on line of D. & H. R. R.; 1¼ miles from school, milk station and Protestant churches. Highways in excellent condition. Nearest large village, Cambridge, 5 miles distant, reached by rail and highway. Surface of farm, level and rolling. Soil, sandy and slate loam. Acres in meadow, 150; in timber, 25. Acres tillable, 208. Fruit, apples, plums, grapes, strawberries and raspber-

* Indicates farm is in hands of agent or real estate dealer.



FIG. 152.—HOUSE ON FARM NO. 1130, TOWN OF SALEM, WASHINGTON COUNTY.



FIG. 153.—VIEW ON FARM NO. 862, TOWN OF MILTON, SARATOGA COUNTY.

ries. Best adapted to hay, grain, dairying, etc. Fences, stone and wire, good condition. House, 15 rooms, good condition. Outbuildings: barn, 28x50, with basement, barn, 28x60, with basement, barn, 20x40, with basement and several other smaller buildings. Watered by springs, brooks and wells. Trout brook runs through farm, good fishing. Occupied by owner. Reason for selling, advanced age of owner. Price, \$50 per acre. Terms, ½ cash. Address Frank M. Knox, agent, 51 State st., Albany, N. Y.

No. 1131 — Farm of 360 acres, located 3½ miles from Salem P. O. and railway station, on line of D. & H. R. R.; 1½ miles from school; 3½ miles from butter factory, milk station, Catholic and Protestant churches; 2½ miles from cheese factory. Highways, somewhat

hilly but good. Surface of farm, meadows level, pasture rolling. Altitude about 490 feet. Soil, loam. Acres in meadow, 100; in natural pasture, 40; in timber, 30, oak, hickory, basswood and maple. Acres tillable, 190. Fruit, apples. Best adapted to grass, oats, corn, potatoes, etc. Fences, stone wall and wire, good condition. House, 28x62, 14 rooms, house, 26x48, 11 rooms, both in good condition. Outbuildings: cow barn, 33x48 with 100 ton silo; cow barn, 30x54; horse barn; corn barn; hen house; need some repairs. Watered by well, cistern, springs and creek. Creek runs through farm. Occupied by owner. Reason for selling, scarcity of help. Price, \$6,000. Terms, \$3,000 down, remainder on mortgage. Will sell farm, stock, tools for \$8,000. Address Chas. Fleming, Salem, N. Y., Box 151.

WAYNE COUNTY

Area, 621 square miles. Population, 50,179. Annual precipitation, 41.36 inches. Annual mean temperature, 50°. Number of farms, 5,237. County seat, Lyons.

This is one of the north tier counties bordering on Lake Ontario and is drained by the Clyde River and Mud Creek which unites with the Canandaigua outlet at Lyons.

The surface is undulating and diversified with long, low and parallel ridges running north and south. There are considerable woodlands of beech, ash, hickory, elm, oak, sugar maple and other trees covering about one-sixth of the county. Excellent building stone, iron ore and gypsum are found. The soil is of the same general nature as the other counties bordering on Lake Ontario, except that in the level strip along the lake where clay and gravelly loam appear in about equal quantities. In the eastern half of the county on both sides of, and including the Clyde River Valley, black dirt with occasional areas of dark, gravelly loam is found. In the western half along the Mud creek valley and south to the county line the soil is composed of sandy and gravelly loam. The crops reported are corn, 911,653 bushels; wheat, 337,333 bushels; barley, 70,000 bushels; dry beans, 79,422 bushels; potatoes, 1,049,202 bushels; hay and forage, 104,117 tons. About 50,000 bushels of buckwheat and rye were also produced. The value of all farm property is \$34,481,902, an increase over that of 1900 of 45.7 per cent. Domestic animals are reported as follows: Dairy cows, 20,645; horses, 15,373; swine, 20,749; sheep, 24,587; poultry, 343,400; production of milk, 9,930,245 gallons valued at \$875,893.

The county is traversed by the Erie (Barge) Canal, the New York Central and Hudson River; West Shore; Rome, Watertown and Ogdensburg, and Northern Central railroads. There are also electric lines extending in the various directions throughout the county. Lyons, the principal city of this county, contains flour mills, distilleries, barrel manufactories and extensive beet sugar factories. Ample markets for everything produced in this county are near at hand in the cities of Rochester, Syracuse, Buffalo, etc.

There are 209 district schools in the county, 26 miles of state and county roads and 552 miles of other improved highways; 26 milk stations are conveniently located throughout the county. One Pomona grange; 20 subordinate granges; a fair association; a union agricultural society; county fire relief association; county agricultural society; county fruit growers' association and the Williamson Fruit Growers' Association constitute the different farmers' associations of the county.

TOWN OF GALEN Population 4,460

No. 1132 — Farm of 200 acres; 2 miles from Clyde P. O. and railway station,

on line of the N. Y. C. & H. R. R. R.; ½ mile from school; 2 miles from churches, all denominations; 2 miles from butter factory; on State highway.

Nearest village, Clyde, population of 2,500, distant 2 miles, reached by highway and trolley. Surface, rolling. Soil, gravel. 20 acres of meadow; 20 acres of natural pasture; 10 acres of timber, beech and maple; 150 acres are tillable. Large fruit orchard, of 1,500 apple trees and 100 peach trees. Land is adapted to all kinds of crops. Fences, in good condition. Large brick house, in good condition. 3 barns of large size; 2 hog houses; 1 stone storage building, 26x46x16. House is watered by well; barns, by well; fields, by spring and river. Clyde river adjoins property on the west. Occupied by owner. Reason for selling, owner would like to retire. Price, \$16,000. Terms, \$4,000 down, and balance on time. Owner will rent with option to buy. Address F. L. Waldorf, Clyde, N. Y.

TOWN OF HUBON

Population 1,531

No. 1133 — Farm of 147 acres; 1½ miles from Alton P. O., R. D. 1; 1½ miles from railway station at Alton, on line of N. Y. C. R. R. (R., W. & O. branch); ¼ mile from school; ½ mile from church; 3½ miles from milk station. Highways, good. Nearest large village, North Rose, 3½ miles distant, reached by rail and highway. Soil, part sandy and part clay; acres in meadow, 20; in natural pasture, 15; in timber, 20, oak and chestnut; acres tillable, 90. Fruit, 350 bearing apple trees, 200 young apple trees, 200 pear trees, 5 years. Best adapted to corn, wheat, oats, hay, beans and potatoes. Fences, mostly wire, about ½ new, balance old. House, 7 rooms, good condition. Outbuildings: evaporator, 16x40; corn crib, new; hen house, 100x17, new; granary, 20x35, partly new; stables, 25x40, old; one barn, 25x30, old; several small outbuildings. Watered, house and barns, by driven well; fields, by springs. Eastern boundary of farm on Great Sodus Bay. Farm is about 5 miles from Lake Ontario. Occupied by tenant. Reason for selling, failing eyesight of owner. Price, \$100 per acre. Terms, \$6,500 cash, balance on bond and mortgage at 5%. Address M. J. Whitman, 94 Conkey ave., Rochester, N. Y.

TOWN OF ROSE

Population 1,883

No. 1134 — Farm of 135 acres; located 1 mile from Rose P. O., R. D. 1; 5 miles

from railway station at Clyde, on line of N. Y. C. R. R.; 1 mile from school and churches; 5 miles from butter factory; 6 miles from cheese factory. Highways, State roads. Surface of farm, rolling and level. Altitude, 500 feet. Soil, gravel and loam. Acres in meadow, 35; in natural pasture, 30; in timber, 6, mostly soft maple. Acres tillable, 125. Fruit, 200 old apple trees and 300 young apple trees. Best adapted to corn, oats, beans and grain. Fences, post and wire mostly, some old rail fences. House, old style, 10 rooms, 50x28. Outbuildings, good basement barn, 80x40, carriage house and stable attached; one old barn, 30x40. Watered by well. Occupied by tenant. Reason for selling, to close an estate. Price, \$50 per acre. Terms, ½ cash, balance on time. Address Mrs. E. Hickok, Clyde, N. Y., R. D. 1. Owner will rent.

TOWN OF WOLCOTT

Population 2,952

No. 1135 — Farm of 55 acres; 2 miles from Fair Haven P. O., R. D. 5, on L. V. R. R.; 4½ miles from railway station at Red Creek, on line of N. Y. C. R. R.; 1 mile from school; 2 miles from Methodist and Presbyterian churches; 2 miles from shipping station; 4½ miles from cheese factory. Highways, fair. Nearest large city, Oswego, population about 25,000, 16 miles distant, reached by rail. Surface, rolling and hilly. Soil, clay loam and gravel. Acres in meadow, 12; natural pasture, 7; timber, 4, beech and maple; acres tillable, 50. Fruit, 100 apple trees, 90 pear, 12 peach, 6 plum, 4 prunes, cherries, quinces, grapes. Best adapted to wheat, oats, corn, potatoes and hay. Fences, wire and rail, good condition. House, 2 rooms, furnace, first-class condition, and woodhouse. Outbuildings, main barn, almost new, with basement, 30x55; wagon house, 18x30; cement floors in all barns; hen house, 15x75; silo. Watered by well, spring and creek. Farm is 1 mile from Lake Ontario; an ideal situation for fruit growing, especially apples. Occupied by owner. Reason for selling, owner desires larger farm. Price asked is about what buildings cost. Price, \$100 per acre. Terms, ½ down, balance on mortgage. Address F. L. Mixer, Red Creek, N. Y.

WESTCHESTER COUNTY

Area, 463 square miles. Population, 283,055. Annual precipitation, 54.26 inches. Annual mean temperature, 50.1°. Number of farms, 1,880. County seat, White Plains.

This county is located in the southeastern part of the state and borders on Connecticut. It is bounded on the west by the Hudson River, on the southeast by Long Island Sound, is intersected by the Croton River and is drained in part by the Bronx River.

The surface is hilly and diversified. There are found several quarries of choice white marble and also quarries of domotite (magnesium limestone). The soil is fertile and adapted to pasturage. It consists chiefly of slaty, sandy and gravelly loam. Crops reported are corn, 188,180 bushels; oats, 34,520 bushels; rye, 18,912 bushels; potatoes, 147,153 bushels; hay and forage, 52,252 tons; value of all farm property, \$66,156,044, an increase of 11.7 per cent. during the past ten years. The average price of improved land in this county is \$434.73 an acre. Domestic animals reported are as follows: Dairy cows, 11,475; horses, 5,392; swine, 5,430; sheep, 1,140; poultry, 138,296; milk produced, 6,942,345 gallons; total receipts from the sale of dairy products, \$765,727.

The county is intersected by the New York, New Haven and Hartford; New York Central, main line, and Harlem and Putnam branch railroads. Many residents of New York City have beautiful villas and country seats in this county. It contains the city of Yonkers and the large villages of Peekskill, Ossining and White Plains. The southern part of the county comprising the populous villages of West Farms, Kings Bridge, Morrisania was annexed to New York City some years ago. White Plains is only 22 miles from the Grand Central Depot, New York City, and contains Alexander Institute which has more than a local reputation. Several celebrated academic and military high schools are located in this county and there are 122 district schools. There is but one creamery in the county as most of the milk produced is shipped directly to New York City. Agricultural societies of the county are represented by 1 coöperative association; 2 granges; a farmers' club; a horticultural society, and a county agricultural society.

TOWN OF NEWCASTLE

Population 3,573

No. 1136 — Farm of 132 acres; 2 miles from railway station at Chappaqua. Soil adapted to general farming. Eight acres orchard; 25 acres timber. House, 14 rooms; tenant house, 5 rooms. Large barn, carriage house and other buildings, in fair condition. Spring water. Price, \$40,000. If desired, owner will divide farm as follows: No. 1, with all the buildings and about 82 acres; price, \$30,000. No. 2, fine rolling ridge of about 40 acres; price, \$10,000. The highway divides each part. Address W. R. Hallock, Mount Kisco, N. Y., R. D. 3.

No. 1137 — Farm of 154 acres; located 2 miles from Chappaqua P. O. and railway station, on line of Harlem R. R., R. D. No. 3 from Mt. Kisco; ½ mile from school; 1 mile from Protestant churches. Highways in good condition. Nearest large village, White Plains, 10 miles distant, reached by rail and highway. Surface of farm, rolling. House, 10 rooms, good condition. Outbuildings,

large and in good condition. Watered by springs and brooks. Occupied by owner. Price, \$40,000. Address Wm. R. Hallock, Mt. Kisco, N. Y., R. D. No. 3.

TOWN OF YORKTOWN

Population 3,020

* No. 1138 — Farm of 50 acres; located 4 miles from Yorktown Heights P. O. and railway station, on line of Putnam Ry.; ½ mile from school; ¼ mile from Presbyterian church; 4 miles from butter factory and milk station. Highways, State road. Nearest city, Peekskill, 4 miles distant, reached by highway. Surface of farm, rolling. Altitude, 550 feet. Soil, clay loam. Acres in meadow, 30; in natural pasture, 20. Acres tillable, 30. Fruit, apple orchard and other fruit. Fences, stone. House, 2 stories, 16 rooms. Outbuildings necessary for size of farm, good condition. Watered house by well, barns and fields by spring. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$10,500. Terms, ⅓ cash. Address Chas. A. May, agent, Yorktown Heights, N. Y.

* No. 1139 — Farm of 72 acres; located 4 miles from Yorktown Heights P. O. and railway station on line of Putnam Ry.; 1 mile from school and Presbyterian church; 3 miles from butter factory. Surface of farm, rolling. Altitude, 600 feet. Soil, sandy loam. Acres in meadow, 40; in natural pasture, 20; in timber, 10, oak, hickory and chestnut. Acres tillable, 40. Fruit, apples and small fruit. Fences, wire and stone. House, 8 rooms. Outbuildings in good condition and ample for size of farm. Watered by well, cistern and springs. Occupied by tenant. Reason for selling, advance age of owner. Price, \$6,000. Terms, \$1,000 cash. Address Chas. A. May, Yorktown Heights, N. Y. Owner will rent.

* No. 1140 — Farm of 90 acres; located $\frac{3}{4}$ mile from Shrub oak P. O.; 4 miles from railway station at Peekskill, on line of N. Y. C. R. R.; $\frac{3}{4}$ mile from school and churches. Trolley runs within $\frac{3}{4}$ mile of farm. Surface of farm, part rolling, part level. Altitude about 700 feet. Soil, rich loam. Acres in meadow, 20; in natural pasture, 10; in timber, 15, oak and maple. Acres tillable, 50. Fruit, 25 acres in orchard. Best adapted to alfalfa, corn, potatoes and truck gardening. Fences, wire and rail, good condition. Good tenant house, main house burned. Barn in good condition. Watered by springs. Large lake adjoining farm, good for trout fishing. Occupied by owner. Reason for selling, owner in other business. Price, \$7,500. Terms, cash preferred. Address J. P. Christensen, agent, 320 Fifth avenue, New York, N. Y.

No. 1141* — Farm of 130 acres; located 2 miles from Yorktown Heights P. O. and railway station, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and church; 4 miles from butter factory and milk condensing plant. Highways, good. Nearest city, Peekskill, 6 miles distant, reached by highway. Surface of farm, rolling. Altitude, 600 feet. Soil, clay loam. Acres in meadow, 100; in natural pasture, 30. Acres tillable, 100. Fruit, apples and pears. Adapted to any crops grown in this climate. Fences, stone, fair condition. House, large, 2 stories, 14 rooms, fair condition. Outbuildings, dairy barn for 20 cows; barn and car-

riage house. Watered by well and springs. Occupied by owner. Reason for selling, to close an estate. Price, \$16,500. Terms, $\frac{1}{2}$ cash. Address Chas. A. May, agent, Yorktown Heights, N. Y.

* No. 1142 — Farm of 90 acres, located 4 miles from Peekskill P. O.; 1 mile from railway station at Mohegan, electric road; 2 blocks from school; 4 miles from butter factory; 11 miles from Catholic and Protestant churches; 1 mile from milk station. Highways, gravel. Surface of farm, 50 acres of level land. Altitude, 500 feet. Soil, sandy loam. Acres in meadow, 50; in natural pasture, 20; in timber, 20, oak, hickory and maple. Acres tillable, 60. Fruit, apple orchard. Adapted to any crop grown in this climate. Fences, stone, good. House, 12 rooms, excellent condition. Outbuildings, 2 barns and other buildings. Watered by well and stream. Occupied by owner. Reason for selling, advanced age of owner. Price, \$17,500. Terms, $\frac{1}{2}$ cash. Address Chas. May, agent, Yorktown Heights, N. Y.

* No. 1143 — Farm of 60 acres; located 4 miles from Yorktown Heights P. O.; 4 miles from railway station at Peekskill, on line of N. Y. C. R. R.; 1 mile from school and Protestant churches; 4 miles from butter factory and milk station. Highways, State road. Surface of farm mostly level. Altitude 700 feet. Soil, clay. Acres in meadow, 40; in natural pasture, 20, some small timber. Acres tillable, 40. Fruit, apples and pears. Adapted to any crops grown in this climate. Fences, stone, excellent condition. House, 16 rooms, modern. Outbuildings, three barns; ice house; hen house; pump house; gas house, etc. Watered by spring. Occupied by owner. Reason for selling, to close an estate. Price, \$10,500. Terms, $\frac{1}{2}$ cash. Address Chas. May, agent, Yorktown Heights, N. Y.

* No. 1144 — Farm of 220 acres; located $3\frac{1}{2}$ miles from Yorktown Heights P. O.; $2\frac{1}{2}$ miles from railway station at Granite Springs, on line of N. Y. C. R. R.; $\frac{1}{2}$ mile from school and Protestant church; $4\frac{1}{2}$ miles from butter factory; $2\frac{1}{2}$ miles from milk station. Highways in good condition. Nearest city, Peekskill, $6\frac{1}{2}$ miles distant, reached

* Indicates farm is in hands of agent or real estate dealer.

by highway and trolley. Surface of farm, rolling. Altitude, 650 feet. Soil, sandy loam. Acres in meadow, 150; in natural pasture, 70. Acres tillable, 150. Fruit, apples, peaches and pears. Adapted to all crops grown in this climate. Fences, stone, excellent condition. House, 12 rooms, good condition. Outbuildings, barn, 50x100; dairy barn and carriage house; hen house. Watered by well. Occupied by owner. Reason for selling, advanced age of owner. Price, \$30,000. Terms, ½ half cash. Address Chas. A. May, agent, Yorktown Heights, N. Y.

* No. 1145 — Farm of 50 acres; located 3 miles from Yorktown Heights P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school and churches; 4 miles from butter factory; 3 miles from milk station. Nearest city, Peekskill, 7 miles distant, reached by highway. Highways, good. Surface of farm, rolling. Altitude, 600 feet. Soil, sand and clay. Acres in meadow, 35; in natural pasture, 15. Acres tillable, 35. Fruit, apples, pears and cherries. Adapted to any crop grown in this climate. Fences, stone, good. House, 8

rooms, good condition. Outbuildings, 2 barns; ice house and hen house, good condition. Watered by well and springs. Occupied by owner. Reason for selling, advanced age of owner. Price, \$8,000. Terms, \$3,000 cash. Address Chas. May, agent, Yorktown Heights, N. Y.

* No. 1146 — Farm of 50 acres; located 3 miles from Yorktown Heights P. O. and railway station, on line of N. Y. C. R. R.; 1 mile from school and Protestant church; 4 miles from butter factory and milk station. Highways, good. Nearest city, Peekskill, 7 miles distant, reached by highway. Surface of farm, mostly level. Altitude, 600 feet. Soil, sand and clay. Acres in meadow, 30; in natural pasture, 20. Acres tillable, 30. Fruit, apples, pears and cherries. Adapted to any crop grown in this climate. Fences, stone, good condition. House, 9 rooms, good condition. Outbuildings, dairy barn for 30 cows; barn and carriage house; ice house and hen house. Watered by well and spring. Occupied by owner. Reason for selling, to close an estate. Price, \$8,500. Terms, ½ cash. Address Chas. May, agent, Yorktown Heights, N. Y.

WYOMING COUNTY

Area, 606 square miles. Population, 31,880. Annual precipitation, 48.32 inches. Annual mean temperature, 46.6°. Number of farms, 3,529. County seat, Warsaw.

This county is situated in the western part of the state, is drained by Allens, Cattaraugus and Tonawanda Creeks and is bounded on the south by the Genesee River. The surface is undulating and quite extensively covered with woodland. Devonian sandstone and shale underlie a large part of this county and extensive salt beds are also found, from which are taken large quantities of salt of excellent quality. In the southern part of the county the soil on the upland is gravelly loam and heavy clay, in the valleys a gravelly loam is found which is excellent for pasturage. In the northern part a heavy clay and gravelly loam resting on limestone predominates. Crops reported are as follows: Corn, 109,600 bushels; oats, 915,608 bushels; wheat, 254,788 bushels; buckwheat, 108,237 bushels; dry beans, 194,015 bushels; potatoes, 1,493,071 bushels; hay and forage, 142,315 tons. The average price of farm land per acre is \$28.99, an increase of \$5.59 per acre over 1900. Domestic animals are dairy cows, 28,066; horses, 11,732; swine, 10,487; sheep, 24,531; poultry, 158,211; milk produced, 14,033,000 gallons, the sale of which amounted to \$1,340,704. In the southeast corner of the county the Genesee River flows between perpendicular cliffs 350 feet high. There are several picturesque cataracts known as the Falls of Genesee, one of which is 110 feet in height. The county is intersected by the Erie; Buffalo, Rochester and Pittsburg, and the Batavia, Attica and Arcade railroads and is connected with Rochester by the Genesee Valley Canal. Cheap, easy and quick transportation to the great markets of Buffalo and Rochester show the advantages of this location. A union school located at Warsaw and a collegiate institute located at Attica with graded schools in villages and 168 district schools place the

* Indicates farm is in hands of agent or real estate dealer.

county high up among the counties of the state in educational lines. There are 36 milk stations and factories in the county; 23 miles of state and county roads and 806 miles of graded and improved highways. The agricultural organizations are 2 fair societies, 12 granges and a Pomona grange.

TOWN OF ARCADE

Population 2,131

No. 1147 — Farm of 147 acres; $3\frac{1}{2}$ miles from Arcade P. O., R. D. 3, and from railway station at Arcade, on line of Penn. R. R. and B. & S. R. R.; $\frac{1}{2}$ mile from school; 2 miles from church; $3\frac{1}{2}$ miles from butter factory and condensing plant; $2\frac{1}{2}$ miles from cheese factory; 3 miles from milk station. Highways, somewhat hilly for $1\frac{1}{2}$ miles, level for remainder. Nearest large village, Arcade, population 1,400, reached by highway. Surface of farm, mostly level. Soil, hardpan, some gravel. Acres in meadow, 65; in natural pasture, 50; in timber, 25, mostly maple, some beech, excellent sugar bush. Fruit, 175 apple trees, 5 pear trees. Best adapted to grass, grain, potatoes, dairying. Fences, wire, fair condition. House, 9 rooms, fair condition. Outbuildings, barn, 70x30, fair condition. Watered by well and springs. Crystal Lake is 3 miles distant from farm; several small creeks near farm. Merrill-Soule milk plant sends team around to farm every day to collect milk. Occupied by owner. Reason for selling, to close an estate. Price, \$4,300. Terms, on application. Address G. E. Cramer, Arcade, N. Y., R. D. 3.

No. 1148 — Farm of $35\frac{1}{2}$ acres; located 2 miles from Chafee P. O. and railway station; 1 mile from school; 2 miles from Protestant churches and butter factory; milk taken at door. Highways, good. 30 miles from Buffalo, reached by rail and highway. Full particulars given upon application to A. S. Crannell, Chafee, Erie Co., N. Y.

TOWN OF EAGLE

Population 1,141

No. 1149 — Farm of $210\frac{3}{4}$ acres; located $2\frac{1}{2}$ miles from Bliss P. O., R. D. 4, and railway station, on line of B., R. & P. R. R.; 1 mile from school; $2\frac{1}{2}$ miles from butter factory, cheese factory, milk station, Catholic and Protestant churches. Highways, good. Nearest large village, Warsaw, 20 miles distant, reached by rail. Surface of farm, level. Altitude, 1,600 feet. Soil, gravel and

loam. Acres in meadow, 95; in natural pasture, 60; in timber, 50, maple, beech and hemlock. Acres tillable, 110. Fruit, cherries and apples. Best adapted to hay, oats, corn and potatoes. Fences, mostly wire, fair condition. House, 12 rooms, hot water heat, acetylene light, good condition. Outbuildings, main barn, 32x60, with ell, 32x60; tool house, 24x36; granary and hen house, each 16x24. Watered by well, springs and creek. Occupied by owner. Reason for selling, owner wants to live elsewhere. Price \$60 per acre. Terms, one-half cash, remainder on mortgage at 5%. Address C. Cross & Son, owners, Bliss, N. Y.

TOWN OF GENESEE FALLS

Population 615

No. 1150 — Farm of 174 acres; located $2\frac{1}{2}$ miles from Castile P. O., R. D. 3; 2 miles from South Castile railway station, on line of Erie R. R.; 3 miles from churches; 80 rods from school; 2 miles from cheese factory. Nearest large village, Warsaw, 12 miles distant, reached by rail and highway. Surface of farm, level and rolling. Altitude, 1,200 feet. Good soil. Acres in meadow, 30; in natural pasture, 10; in timber, about 30, beech, maple, hemlock, chestnut and pine. Nearly all tillable. Fruit, apples. Best adapted to wheat, oats, buckwheat, beans, potatoes, etc. Fences, mostly wire. House, upright, 2 stories, wing, $1\frac{1}{2}$ stories. Outbuildings, large barn, 30x85, nearly new, with carriage house, 16x26; cow stable, 18x32. Watered by spring and brook. Occupied by owner. Reason for selling owner a woman and cannot attend to farm. Price, \$85 per acre. Terms, one-half or more down, remainder on mortgage. Address Miss Mary L. Smith, Castile, N. Y., R. D. 3.

TOWN OF MIDDLEBURY

Population 1,395

No. 1151 — Fruit farm of 13 acres; located 2 miles from Wyoming P. O.; 3 miles from railway station at Wyoming, on line of B., R. & P. R. R.; 80 rods from school; 3 miles from butter factory; 2 miles from churches. Highways, good. Nearest large village, Batavia, 12 miles distant. Surface of farm,

level. Altitude, about 1,200 feet. Soil, gravelly loam. Fruit, apple orchard of 10 acres, 1 acre of plums and prunes. Best adapted to fruit. Fences, good. House, 7 rooms. Good barn, new. Watered by wells. Occupied by owner. Reason for selling, owner wants to retire from business. Price, \$3,600. Terms, \$1,000 down. Address E. L. Hayden, Wyoming, N. Y.

No. 1152 — Farm of 228 acres; located 2 miles from Wyoming P. O., R. D. 2; 3 miles from railway station at Wyoming, on line of B., R. & P. R. R.; 60 rods from school; 2 miles from Protestant churches; 3 miles from butter factory; creamery wagon passes door. Highways, good. Nearest large village, Warsaw, 8 miles distant, reached by highway. Surface of farm, rolling. Altitude, 1,200 feet. Soil, gravelly loam. Acres in meadow, about 78; in natural pasture, 60; in timber, 40, maple, oak, elm, ash and basswood. Acres tillable, 196. Fruit, 60 apple trees. Best adapted to wheat, beans, oats and peas. Fences, wire, fair condition. House, first-class condition, furnace in which natural gas is used. Outbuildings, barns, ample size and in first-class condition. Watered by never-failing spring. Occupied by owner. Reason for selling, owner wishes to retire from business. Price, \$16,000. Terms, \$5,000 cash, balance on mortgage. Address E. C. Hayden, Wyoming, N. Y.

TOWN OF PERRY

Population 5,360

No. 1153 — Farm of 150 acres; located 8 miles from Warsaw P. O., R. D. 3; 4 miles from railway station at Wyoming, on line of B., R. & P. R. R.; 1½ miles from school; 3½ miles from Baptist church; 4 miles from butter factory and milk station. Highways, good. Nearest large village, Perry, 5½ miles distant, reached by highway. Surface of farm, gently rolling. Altitude, about 1,400 feet. Soil, sand and gravel loam. Acres in natural pasture, 15; in timber, 14, beech, maple, basswood and elm. Acres tillable, 110. Fruit, apples, plums, prunes and cherries. Best adapted to beans, oats, barley, wheat, clover and timothy. Fences, woven wire and rail, good condition. House, 10 rooms, good condition. Outbuildings, barn, 28x60; cow stable, 28x16; shed and stable, 24x30; carriage house, 24x12; barn, 24x30; silo, 18x30; hen house, 18x24;

and hog house, 15x25. Watered by wells and cistern. Occupied by tenant. Reason for selling, advanced age of owner. Price \$75 per acre. Terms, \$3,000 cash, balance on long time at 5%. Address Anna L. Sheldon, 620 Seventh avenue, Cedar Rapids, Iowa. Owner will rent.

No. 1154 — Farm of 110 acres; located 5 miles from Perry P. O., R. D. 2, and railway station, on line of B., R. & P. R. R.; ¾ mile from school; 3 miles from Baptist church; 5 miles from butter factory. Highways, good. Surface of farm, gently rolling. Altitude, about 1,400 feet. Soil, sandy loam. Acres in natural pasture, 20; in timber, 20, beech, maple, elm and ash. Acres tillable, 60. Fruit, apples and cherries. Best adapted to beans, oats, barley, wheat, clover and timothy. Fences, mostly woven wire, some rail, good condition. House, 11 rooms, fair condition. Outbuildings, barn, 35x45; barn, 45x20; hog house and corn crib, 20x18; hen house, 18x12; and tool house, 30x14. Watered by wells and cistern. Occupied by tenant. Reason for selling, advanced age of owner. Price, \$85 per acre. Terms, \$2,000 cash, balance on long time at 5%. Address Anna L. Sheldon, 620 Seventh avenue, Cedar Rapids, Iowa. Owner will rent.

TOWN OF WETHERSFIELD

Population 928

No. 1155 — Farm of 245 acres; located 3 miles from Bliss P. O., R. D. 1, and railway station, on line of B., R. & P. R. R.; ¼ mile from school; 2½ miles from Baptist church; ½ mile from butter factory and cheese factory; 4 miles from milk station; 12 miles from milk condensing plant. Highways, good. Nearest large village, Warsaw, 12 miles distant, reached by highway. Surface of farm rolling. Altitude, 1,400 feet. Soil, gravel. Acres in meadow, 80; in natural pasture, 60; in timber, 40, maple, beech, elm and basswood. Acres tillable, 160. Fruit, small orchard. Best adapted to dairying, wheat, hay, oats, corn and barley. Fences, wire and rail, good condition. House, medium size and in good condition. Outbuildings, basement barn, 36x80; horse barn, 30x40. Watered by spring. Occupied by owner. Reason for selling, advanced age of owner. Price, \$10,000. Terms, part down. Address B. F. Neely, Bliss, N. Y., R. D.

No. 1156 — Farm of 240 acres; located 2 miles from Wethersfield Springs P. O.; 5 miles from Rock Glen railway station, on line of B., R. & P. and Erie R. R.; ¼ mile from school; 2 miles from Methodist church; 2½ miles from butter factory and cheese factory; 5 miles from milk station. Highways, good. Surface of farm, level. Altitude, 1,400 feet. Soil, sandy loam. Acres in meadow, 75; in natural pasture, 50; in timber, 40; beech and maple. Acres tillable, 150. Fruit, small orchard. Best adapted to hay, oats, barley, potatoes and dairying. Fences, wire and rail, good condition. House, 10 rooms, good condition. Outbuildings, basement barn, 80x36. Watered by springs. Occupied by owner. Reason for selling, ill health. Price, \$6,000. Terms, part down, balance on time. Address Frank Blowess, Warsaw, N. Y., R. D.

No. 1157 — Farm of 244 acres; located 1½ miles from Hardy's P. O. and rail-

way station, on line of B., R. & P. R. R.; ¼ mile from school; 2½ miles from Methodist church; 2¼ miles from butter factory; 1¼ miles from milk station and milk condensing plant; 1 mile from cheese factory. Highways, good. Nearest large village, Warsaw, 10 miles distant, reached by rail and highway. Surface of farm, level. Altitude, 1,200 feet. Soil, gravel. Acres in meadow, 80; in natural pasture, 60; in timber, 15, beech, maple, etc. Acres tillable, 200. Fruit, apples and pears. Best adapted to dairying, hay, wheat, oats, barley and potatoes. Fences, wire, fair condition. House, 12 rooms, 2 stories, good condition. Outbuildings, basement barn, 86x36; barn, 26x30; barn, 30x40; hog pen, 16x20. Watered by pump and spring. Occupied by owner. Reason for selling, does not want so much land. Price, \$15,000. Terms, part down, balance on time. Address Ralph Bagg, Bliss, N. Y., R. D.

YATES COUNTY

Area, 340 square miles. Population, 18,642. Annual precipitation, 31.75 inches. Annual mean temperature, 46.8°. Number of farms, 2,288. Average value of farm lands per acre, \$66.03. County seat, Penn Yan.

This county is located in the west central part of the state, in the "Finger Lake" district. Seneca Lake forms its eastern boundary. Canandaigua Lake its western, and Lake Keuka partly intersects it from the south.

The surface features of the county are marked by a series of five gently sloping ridges running north and south.

The soil consists of a fine quality of gravelly loam intermixed with clay and the disintegrated shales of the Portage group, and is particularly well adapted to pasturage, tillage or fruit growing. Among the valuable rocks that underlie the soil are Portage sandstone and Tully limestone. The county is well watered by streams, springs, lakes and ponds.

Ash, beech, elm, hickory, oak and maple are the leading trees of the woodlands.

Domestic animals are reported on 2,139 farms as follows: Dairy cows, 5,566; horses, 7,270; swine, 7,884; sheep, 36,554; poultry, 125,644. The number of farms reporting dairy cows was 1,907 and their total production of milk was 2,677,246 gallons. Total receipts from the sale of dairy products was \$156,044.

Yates is the second grape and wine producing county in the state. The first champagne produced in the United States was made in Yates County and this industry has steadily progressed until to-day it exceeds any other county in the United States in this production. The county is well equipped with transportation facilities, good roads, steam and electric lines. Buffalo, Philadelphia, New York, Syracuse, Rochester and other centers of population afford ample markets outside the county for all products of farm, garden, orchard and vineyard.

Educational advantages are of the best, there being, in addition to the many graded, high and academic schools, 104 school districts in the county.

Agricultural organizations comprise a county fair association, Yates County Agricultural Society and nine granges.

TOWN OF ITALY

Population 861

No. 1158 — Farm of 150 acres; 4 miles from Naples P. O., R. D. 26; 2 miles

from railway station at Glenlock, on line of L. V. R. R.; ¼ mile from school; 1 mile from Methodist church; 4 miles from butter factory. Highways, good.

Surface, rolling and level. Soil, sandy loam and light clay. Acres in natural pasture, 25; in timber, 25, hemlock, pine and oak. Acres tillable, 100. Fruit, apples, pears, peaches and cherries. Best adapted to corn, potatoes, beans, all grains and clover. Fences, woven wire and rail, fair condition. House, 10 rooms, frame, good condition. Outbuildings, 2 barns, corn house, hen house, sheds, etc. Watered, house, by soft water; barns, by running water; fields, by springs and brooks. Canandaigua Lake is about 5 miles distant from farm. Occupied by owner. Reason for selling, owner has other business. Price, \$5,000. Terms, a small amount cash, balance to suit. Address W. H. Ellerington, Naples, N. Y., R. D. 26. Owner will rent.

TOWN OF JERUSALEM

Population 2,444

No. 1159 — Farm of 46 acres; $1\frac{1}{2}$ miles from Keuka Park; 6 miles from railway station at Penn Yan, on line of N. Y. C. R. R.; R. D. 5 from Penn Yan. Nearest large village, Penn Yan, population 5,000, distant 5 miles. Highways, first-class. Acres in meadow, 2; acres tillable, 43; acres natural pasture, 3; acres timber, 3. Fruit, 26 acres of grapes, bearing; 8 acres 5 and 6-year-old grapes in bearing; 5 acres 6-year-old peaches; 2 acres plums, 5 years old; and 1 acre of apples, all in fine condition. Occupied by owner. Fences around pasture. House, 2 stories, 30x40, in fair condition. Outbuildings, barn, 20x30, in fair condition; ice house; hen house. Old house, 20x30, with wing, 12x20, in poor condition. Watered, house, by well and cistern; barns, by spring. This farm is located on lake side with frontage of 1,500 feet on lake shore and within $1\frac{1}{2}$ miles of Keuka College. Reason for selling, advanced age of owner. There are several cottage sites on the lake shore. For price and terms, address R. F. Scofield, Penn Yan, N. Y.

TOWN OF MIDDLESEX

Population 1,122

No. 1160 — Farm of 124 acres; located $\frac{1}{2}$ mile from Rushville P. O., R. D. 23, and railway station, on line of Lehigh Valley Ry.; 1 mile from school, Catholic and 2 Protestant churches. Highways, good. Surface of farm, part level and part rolling. Altitude, 670 feet. Soil, clay loam, some gravel. Acres in meadow, 20; in timber, 15. All tillable except woodland. Fruit, apples, 125 trees. Best adapted to corn, beans, wheat, barley, hay, oats, etc. Fences, woven wire, good condition. House, 12 rooms, good condition. Outbuildings, barn, 32x100; barn, 34x84; hen house; new hog pen, etc. Watered by well, spring and creek. Occupied by owner. Reason for selling, ill health. Price, \$13,000. Terms, one-third cash, balance on bond and mortgage at 5%. Address Wm. H. Savage, Rushville, N. Y. There is a natural gas well on farm, which furnishes light and heat.

TOWN OF MILO

Population 6,088

No. 1161 — Farm of 80 acres; located 5 miles from Penn Yan P. O., R. D. 2, and railway station, on line of Penn. and N. Y. C. R. R.; 1 mile from school; 3 miles from churches; 7 miles from butter factory. Highways, in good condition. Surface of farm, level and side hilly. Altitude, about 1,000 feet. Soil, sand and gravel loam. Acres in meadow, 15; in natural pasture, 10; in timber, 10, hard wood, pine and hemlock. Acres tillable, 70. Fruit, 16 acres of grapes, 7 acres of berries, 1 acre of peaches, $\frac{1}{2}$ acre pears, 2 acres apples and cherries. Best adapted to fruit. Fences, woven wire, fair condition. House, 12 rooms, fair condition. Outbuildings, basement barn, 38x40, with shed and separate tool shed; barn, nearly new. Watered, by well, creek and springs. Occupied by owner. Farm is 1 mile from Keuka Lake. Reason for selling, ill health. Price, \$5,200. Terms, \$1,500 cash. Address Ray D. Louk, Penn Yan, N. Y.

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HON. MARTIN H. GLYNN,
Governor of New York State.



F. H. ALLEN,
New York State Delegate.



R. B. VAN CORTLANDT,
New York State Delegate.



C. C. MITCHELL,
New York State Delegate.



CALVIN J. HUSON,
Commissioner of Agriculture.

STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, *Commissioner*

Bulletin 56

Special Report
OF
New York State Delegates
ON THE
American Commission
FOR THE
Study of Agricultural Coöperation in
Europe

Compiled by
FREDERICK H. ALLEN and CHARLES C. MITCHELL

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NEW YORK CITY, *December 10, 1913.*

HON. MARTIN H. GLYNN, *Governor of New York, Executive Chamber, Albany, N. Y.*

DEAR GOVERNOR GLYNN: In transmitting the enclosed report to you, and by way of explanation of the method adopted in making it, we beg to say that during our visit in Europe we devoted more time and attention to the questions of the business organization of agriculture from the point of view of the selling, the marketing and the distribution of food products; and while of course in common with this, we also studied the question of rural credits, we have in our report gone more fully into the other questions involved. In drawing up our report we have made use of perhaps a plethora of actual experiences and descriptions by different people in Europe, as to what they were doing, feeling that this would be more interesting and illuminating to the farmer than mere descriptions of the process, made by ourselves.

Very truly yours,

FRED'K H. ALLEN,

63 Wall St., New York City.

CHARLES C. MITCHELL,

Millbrook, N. Y.

[752]

STATE OF NEW YORK
EXECUTIVE CHAMBER

ALBANY, *December 18, 1913.*

HONORABLE CALVIN J. HUSON, *Commissioner of Agriculture,*
Albany, N. Y.

DEAR COMMISSIONER HUSON:— I am sending with this the special report of the New York State delegates on the American Commission for the Study of Coöperation in Europe, which I have recently received.

This report contains a large amount of information on this interesting and important subject which seems worthy of wide publicity.

Inasmuch as the Legislature this year assigned to you the general charge of the development of agricultural coöperative associations for the buying and selling of farm produce throughout the State, it would seem fitting that this special report be published as a bulletin by the Agricultural Department.

Very truly yours,

(Signed) MARTIN H. GLYNN

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INTRODUCTION

This report prepared by two of the New York State delegates who took an active part in the work of the American Commission in Europe, has been based upon the evidence collected by the whole delegation and written with a special view to making it useful and interesting to the farmers and consumers of farm products in the State of New York.

THE AMERICAN COMMISSION WHICH STUDIED AGRICULTURAL COÖPERATION IN EUROPE

COMPOSITION

There were thirty-three of the United States and three Canadian provinces represented by seventy-seven delegates, of whom twenty-four were farmers, ten professors of agriculture, eight bankers, six lawyers, six journalists, five social workers, four manufacturers, three college presidents, three merchants, two insurance men, one railroad land agent, one Y. M. C. A. representative and one civil engineer (fourteen of those classified otherwise, actually own and operate farms).

About two-thirds of the delegates were engaged in farming or teaching agriculture and nearly one-third claimed farming as their particular avocation.

EXPENSES

There were seven delegates appointed by the President to investigate agricultural credit and make a report to the government, and Congress appropriated \$25,000 for this work. The expenses of a majority of the state delegates were paid by money appropriated by their respective legislatures, although some of them paid their own way.

The five Canadian delegates were paid a salary in addition to their expenses, by the provincial governments which sent them.

ORGANIZATION

The Commission sailed from New York April 26, 1913, and during the two weeks voyage meetings were held twice daily in which the requirements for improvement and the present methods

of conducting the operations of agricultural production, distribution and marketing, rural credit and rural organization and country life, were discussed. The delegates from each state spoke in turn, stating what they desired to find out in Europe to benefit the agricultural conditions of their respective states. Sections were organized and committees formed, so that each country and subject would be covered by those best qualified and most interested in the improved methods to be studied.

A general plan for conducting the investigations was adopted so as to avoid duplication of effort, and with a view to facilitating comparisons between the data collected by the several committees and in the various countries.

A "Questionnaire" was made out for each of the four phases of the investigation covering the salient points to be investigated in agricultural production, distribution, finance and rural life, and the "Jury of Inquiry" method of investigation was tried by putting delegates on the witness stand and examining them concerning their home conditions. Some of the witnesses preferred to set forth the facts in an uninterrupted discourse before being questioned, and it was thought best to adopt this method. Provision was also made to have some individual investigations made among the farmers on their own land in Europe, and several of the delegates who understood the European languages carried on these investigations in a more detailed way, at the same time that the regular committees were pursuing the general plan of inquiry.

RECEPTION COMMITTEE ARRANGEMENTS

The United States diplomatic representatives in all the countries in Europe were advised several months in advance by the Secretary of State to arrange for receiving the Commission, and committees on program and reception were appointed by the several European countries. They arranged to have persons most familiar with the subjects to be investigated appear before the Commission in each country and submit documentary evidence, deliver addresses and answer questions as well as to furnish printed matter. In most of the countries very great care was given to this work by the Departments of Agriculture and the several coöperative organizations, and in France

particularly, a most comprehensive and valuable program was arranged. The Commission was received by the Minister of Agriculture and presented to the President of France, and the same courtesies were extended in Italy and Ireland.

ITINERARY

The Commission spent about two months upon the continent, dividing into groups and visiting several countries simultaneously, having been all together at the beginning in Italy and reuniting again in France. The countries visited were Italy, France, Germany, Austro-Hungary, Switzerland, Russia, Egypt, Sweden and Norway, Holland and Belgium, Spain and the British Isles.

INVESTIGATION

The general plan followed was for the main body of the Commission to listen to the addresses of the best informed authorities in each country visited and then to question them on any points in the "Questionnaire" not touched upon or made clear, all of which information was taken down by stenographers and supplemented by specially prepared typewritten documents and printed matter furnished by the authorities in each country. The Commission then divided into groups and committees and went out into the country in various directions and collected information at first hand from the farmers on their own land. They visited a number of coöperative societies, and markets and all other points of special interest.

There were several members of the Commission who spoke the European languages, and these, with as many interpreters as were necessary, facilitated the inquiries.

By carrying on the investigations in several directions from each center visited, at the same time, and comparing notes when the groups were reunited, a check was kept on the authenticity of the information gathered. The carefully prepared program made by the reception committee in each country visited, and the importance attached to the visit of so large and representative a Commission from America, enabled us to gather much valuable information in a classified form and in a limited time, that it would have been difficult to obtain in any other way.

The more detailed study made in each country by one or more delegates individually and the records of which were brought together in the "evidence" and printed by the United States Government by order of Congress, serves as a comprehensive and valuable basis on which to develop reports for each of the states, and also from which a report for the United States as a whole was prepared.

PREPARATION OF REPORT

The data collected was classified and compiled by a committee of the delegates who collaborated at Washington for three months after the return from Europe. This classified data was printed by Congress as a public document and known as the "Information secured by the American Commission." Several of the delegates worked together to condense the most important features of this evidence into a suitable report for general distribution, which was also printed as Senate document No. 214, known as the "Report of the Commission to Investigate and Study Agriculture Credits in Europe," and may be obtained by any one from the government. The New York State delegation had a representative in Washington on this work and also conferred with the Governor and a special committee consisting of the Commissioner of Agriculture, the Director of the State College of Agriculture and the Chairman of the New York Food Investigating Commission, as to the special agricultural needs of New York State.

This report was then prepared with a view to showing in what way the European countries have remedied such deficiencies from which we are known to be suffering, and indicating to what extent they have done this; also pointing out the methods by which they have accomplished the improvement. Mr. Robert B. Van Cortlandt is both a banker and a farmer and gave special attention to the investigations of agricultural credit in Europe. He also served on the advisory committee in preparing the evidence at Washington, and he has submitted a special report on that subject to the Governor. Professor G. N. Lauman, of the State College of Agriculture at Ithaca, has studied the agricultural situation in all its phases for a longer time than the other members of the commission, and more in detail, and expects to report later on agricultural education and rural life. The subjects of agricul-

tural production, distribution and marketing and the business organizations of these operations were very carefully studied, both by Frederick H. Allen, a lawyer and proprietor of a farm at Harrison, near Pelham, N. Y., and C. C. Mitchell, a civil engineer and farmer from Dutchess county, N. Y.

Mr. J. N. Francolini, who was delegated by Governor Sulzer to attend the International Institute of Agriculture Reunion at Rome, accompanied the American Commission through Italy and reported separately to the Governor.

Mr. A. E. Roberts of New York City, represented the Y. M. C. A. and accompanied the commission throughout the entire trip.

Honorable Oscar S. Straus of New York City, investigated coöperation and the economic side of European life.

Fortunately all the members of the New York delegation have a knowledge of the European languages, and were thus enabled to gather their information first hand without the need of interpreters. Mr. Allen was able to travel and study in France, Switzerland, Italy, Germany and the British Isles for some six weeks after the commission left, and Mr. Mitchell spent six weeks among the farmers on the farms and among the coöperative purchasing and selling societies and the markets.

It is hoped that the information in this report may be of some help in showing the relationship between the agricultural conditions in European countries and those in New York and in indicating to what extent and by what means the majority of the European countries have been able to produce a larger yield per acre and to sell this produce in such a systematic and business-like manner that the producers get a more equitable proportion of the amount finally paid by the consumer, and how the consumer has been benefited as well in both price and quality of produce.

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IMPRESSIONS OF EUROPEAN AGRICULTURE

Some of the points which strike an American most forcibly in European agriculture are indicated in the following statements:

1. The high price of land, which sells at from \$40 an acre for pasturage in such countries as Ireland, to \$1,000 per acre for the best orange groves in Spain and Italy. Vineyard lands in France, Italy and Spain sell at \$1,500 to \$2,500 per acre; whereas cultivated lands adjacent are worth only \$125 to \$500 per acre and cultivated lands in Germany \$80 to \$500 per acre.

2. The high price of such products as wheat, which sells at \$1.60 per bushel, and beef, which sells at 15 cents per pound, dressed weight in Italy, and proportionately high in the other European countries. The only cheap farm products are fruit, wine, olive oil, eggs and grain. The latter is raised everywhere and often ground in flour in co-operating mills. Milk distributed economically is cheap, and poultry also. This accounts for the almost universal use of these latter products as food by the Europeans.

3. The high production from large estates as well as small farms; fifty bushels of wheat per acre being not unusual and as much as twenty five tons of alfalfa per acre has been raised under irrigation in Spain. It was cut every two weeks from April to October, making fourteen cuttings, the height being about fifteen inches each time.

4. The extreme neatness and well kept appearance of the country is noticeable, and almost all available land is utilized to the fullest extent. The buildings are artistic in appearance, although no rubbish is to be seen anywhere, and there are few bushes and weeds.

5. Leguminous crops, like alfalfa, trefoil, clover, soy beans, cow peas, "lava" etc., are included in the crop rotation, being mowed for two or three years and the final growth being plowed under. This method of plowing under growing crops at the end of the year, whether leguminous or otherwise, is employed to keep the soil in the soil.

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A Street in Toledo, Spain



IMPRESSIONS OF EUROPEAN AGRICULTURE

Some of the points which strike an American most forcibly in European agriculture are indicated in the following statements:

1. The high price of land, which sells at from \$40 an acre for pasturage in such countries as Ireland, to \$3,000 per acre for the best orange groves in Spain and Italy. Vineyard lands in France, Italy and Spain sell at \$1,500 to \$2,500 per acre; whereas cultivated lands adjacent are worth only \$125 to \$500 per acre and cultivated lands in Germany \$80 to \$500 per acre.

2. The high price of such products as wheat, which sells at \$1.60 per bushel, and beef, which sells at 16 cents per pound, dressed weight in Italy, and proportionately high in the other European countries. The only cheap farm products are fruit, wine, olive oil, eggs and grain. The latter is raised everywhere and often ground in flour in coöperative mills. Milk distributed economically is cheap, and poultry also. This accounts for the almost universal use of these latter products as food by the Europeans.

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A Street in Toledo, Spain



6. Chemical fertilizers are used almost everywhere and in large quantities, the most generally employed fertilizer being superphosphate. Compounds of potash and lime are also extensively employed. In some localities they still use "Guano" from South America, and everywhere the available stable manure is carefully conserved and distributed where it will do the most good. •

7. Great quantities of live stock are kept in almost all the countries. In the British Isles one gets the impression that the whole country is devoted to grazing, for almost every field is full of cattle and sheep. In most of the continental countries the cattle are kept in the stable more and are only allowed in the pastures when they are tethered, or when they are driven up into the mountains during the summer.

8. Coöperative societies exist in all the countries, especially among the farmers, for the purchase of seed, fertilizers, agricultural machinery, etc. Only recently have selling societies been established for the sale of farm products; nevertheless some of them have attained marvelous results and their rate of progress is notable.

9. Practical field demonstration by traveling professors of agriculture throughout the farming sections have resulted in universal adoption of the most progressive methods of cultivation, fertilization, crop rotation and proper application of moisture. This seems to be the main reason for the high production in European countries.

10. As an outgrowth of the agricultural purchasing societies, associations for rural credit, mutual insurance against damage to crop and accident to livestock, stock breeders and cow testing associations, have been formed. This has facilitated and made more economical and less risky all the operations of the farmers.

11. Until recently, and even yet, agricultural machinery has not been as much used in Europe as in our country. This has been due partly to the high cost of machinery and the low price of labor, also to the great number of orchards in which the grain crops are frequently grown, not admitting of room to operate machinery, whereas in other localities the small individual

patches of grain are not extensive enough to warrant machine operations.

12. The coöperative use of agricultural machinery among small farmers who could not afford to own it individually, has done much to lessen the cost of their operations. Sometimes a number of small individual fields adjacent to one another and separately owned, with no fence between, but all cultivated in the same manner, are operated jointly by the use of machinery. Mowing machines, reapers, threshing sets and even traction plows are owned and used coöperatively in such cases.

13. The farmers' coöperative societies have done a great deal toward insuring good quality and purity in chemical fertilizers and seeds. In many cases they have established fertilizer manufacturing and seed growing plantations and maintained testing laboratories, with the result that these necessary materials are more certain to be good and to cost the farmer less.

14. There is a notable tendency to encourage small land holdings, and the number of small farms operated by an owner and his family is constantly increasing. Large estates when carefully superintended and operated by machinery and in a scientific manner are capable of the highest production and greatest economy; unfortunately they are usually left to the care of employees and are not given personal attention by their owners, so that in most cases they are uneconomically managed. Many such estates are being sold and subdivided to bring the land under the direct supervision of smaller proprietors.

15. The average size of farms in countries like Denmark, where there is much intensive cultivation, is ninety acres — not very different from those in New England and eastern New York. In France there are a great many economically operated farms, ranging in area from twenty-five to one hundred and twenty-five acres, but in most of the European countries the tendency has been to extremes — either too small subdivisions or too large holdings.

16. Although the wages paid in many parts of Europe to laborers in the country seem low to us — 40 cents to \$1.40 for a day of ten hours — temporary laborers in cities like Paris get from \$1.60 to \$2 per day, just as they do in New York. The

fact that so much higher wages are required to induce laborers to work in the cities shows how great the attractions have been made for them to remain in the country.

17. There is a marked tendency toward an advance in wages and shorter hours on farm work, and for farm laborers and those renting land to acquire small holdings, build homes on them and supplement their incomes by working out by the day for their larger neighbors.

18. The low wages paid by the factories are partly due to the fact that so many farm families living in villages and having one or more members going to the factories, depend upon the other members of the family to stay at home and do the farm and house work, thus keeping down the cost of living.

19. Industrialization and commercialization of agricultural business has been found necessary to enable the farmers to keep pace with the manufacturers and merchants. This has been made possible partly through the facilities afforded through agricultural credit.

20. A friendly attitude of the Joint Stock Banks is observed toward the agricultural credit societies (rural banks), because the latter act as "feeders." The groups of small farmers acting through their local societies are like big individual customers to the existing banks. This sort of custom never would get to the banks in any other way.

21. Country life conditions are improved through the introduction of good sewer systems, modern sanitary houses, amusements, fairs, athletic and aviation contests, shooting, hunting clubs, etc. The agricultural and allied associations are the social centers, and everybody from the rulers down, lauds and respects the pursuit of agriculture.

22. Private initiative backed by public and government support was observed to have brought about the improvement. In each locality some man or woman of high ideals and public spirit could be traced as the author or originator of the improvement in the locality. Each country also has a great leader like M. Meline in France and Sir Horace Plunkett in Ireland.

23. An interchange of ideas and experience is fostered by encouraging the farmers to travel or send representatives to the ex-

positions, fairs and conventions which are being held in various parts of Europe. In France, Spain and Italy the seat of these reunions is purposely changed from year to year so that each locality may become known.

24. Much stress is laid upon schools of practical agriculture established in the several provinces, and instruction along agricultural lines is being introduced into the public schools in the rural districts.

25. Legislation tending to lessen the discrimination against agriculture is being passed and the governments are awakening to the fact that the farmer must be treated not charitably, but justly, and given equal rights with manufacturers and merchants.

26. An increasing respect for rural life is everywhere observed, people being proud to call themselves cultivators or farmers, and country people. It was only among the most ignorant emigrating classes that farm life was considered beneath that of the city.

27. The same fundamental principles of coöperation were found to be working well in all the countries visited, notwithstanding their differences of language, temperament, climate, methods of cultivation, or kind of production.

28. There is a feeling that each locality requires separate treatment according to its social requirements. Some places are most deficient in methods of production, some are lacking in credit facilities, but almost all are deficient in distribution and marketing and country life conditions. All these matters are so closely interwoven that they can not be treated separately, but the greatest deficiency should be remedied first, and the remedies for the others taken up in their order.

29. In some places farmers have been buying at retail and selling at wholesale prices, as we are doing in this country — just the opposite of the manufacturers and merchants. The easiest reform to start has been that of the coöperative purchase of seeds, fertilizers, cattle feed and farm machinery, but the most necessary is coöperative sale of farm produce, with a view to reducing the cost of getting it to the customer so that the latter may receive it in the best condition and at the lowest price consistent with a fair profit to the producer.

30. It is not so much to eliminate all "middlemen," as to reform the wasteful business methods of distribution. The

sending of countless delivery wagons criss-crossing in every direction, in the cities, overlaps territory with resulting delay and expense.

31. Coöperative societies among consumers have been very successful, especially in Great Britain where the Coöperative Wholesale Society has been established for many years and is one of the largest handlers of the necessities of life in the world. Producers' marketing and selling societies are encouraging societies of consumers to act as their direct customers.

32. It is generally agreed that the consumers should coöperate so that distribution can be simplified, and wherever they create a demand it will be met by coöperative associations of producers. This is a field which is being given attention at the present moment and which should be carefully considered in our own country.

AGRICULTURAL NEEDS OF THE STATE OF NEW YORK

1. A readjustment of existing methods in distributing, marketing and delivery of farm products, particularly that part which takes place between the city terminals and the consumers.

2. Coöperation among consumers in purchasing their supplies at wholesale and an effort on their part to simplify deliveries, so as to eliminate rehandling and overlapping.

3. Coöperation among producers (farmers) in wholesale purchase of supplies, study of market requirements, standardization of produce, full carload shipment, and cold storage collecting stations.

4. Conservation of soil fertility, reforestation, development of water power, adaptation of crops to locality and market, and more intensive methods of cultivation.

5. Industrialization and commercialization of agricultural business. Keeping accounts and regulating operations accordingly, not waiting for the end of the year, but checking up frequently as contractors do.

6. A more reasonable standard for the quality and purity of milk, graded definitely A, B, and C, and a better regulation of the cold storage of eggs, butter, etc.

7. Simpler and cheaper means of borrowing money for the acquiring of farm lands for permanent improvement as well as for the seasonal operations.

8. Better roads in the country, particularly the side roads which branch out to the farms away from the state roads.

9. Practical demonstration on the farm of what it is possible to do under average conditions in farming for profit.

10. An open market with provision for sales at auction for all farm produce in the large consuming centers where the farmers can send their commodities and be sure of having them placed at the disposition of the consumers without being held for speculation.

NEEDS OF DELAWARE, NEW JERSEY AND MAINE

A summary taken from brief statements furnished by a committee of three, appointed by the Governor of each State, setting forth the most urgent needs in agriculture.

DELAWARE

1. The State of Delaware needs more capital for the farmers.
 2. Cheaper and better transportation for farm produce.
 3. Better agricultural instruction both for the children in the schools and for the adults.
 4. Community efficiency and coöperation.
 5. Better facilities for marketing farm produce.
 6. More information applicable to everyday farm practice.
 7. Local organization, federal and state government coöperation in agricultural education.
 8. Good roads which should be encouraged and aided by federal appropriation.
 9. A State commission to study and frame legislation to enable the State to coöperate effectively with the Federal Government.
- (From the report of Mr. O. A. Newton, President of the State Board of Agriculture, for Delaware.)

NEW JERSEY

1. More rapid development of production, distribution and transportation of farm produce.
2. Better agricultural education for adults, as well as for children.
3. Increased attention to individual farm enterprise, which may be given through the agricultural extension service.
4. Legislation to provide for electric trolley transportation of farm produce, and for better roads.
5. Further advantage should be taken of the parcel post for distributing farm produce.
6. Farmers should combine to ship their produce in carload lots when individually unable to do so.
7. Farmers should study the markets with a view to regulating their production to meet the demand.
8. Collecting stations and storage warehouses should be provided as centers of production.

9. Public markets should be maintained in all towns.
 10. Combined or coöperative purchasing by the consumers of food products.
 11. Information concerning markets should be made available to the farmers through the State Agricultural Department.
 12. Legislation to prevent soil depletion, and for regulating land tenure.
 13. Scrub oak, pine and swamp land should be reclaimed, and a special experiment station provided to deal with each district being so reclaimed.
 14. Irrigation should be introduced.
 15. Public opinion should be stimulated and crystallized through discussion of these needs.
- (Extract from report by the committee of three appointed by the Governor of New Jersey: Joseph S. Frelinghuysen, A. J. Rider and J. E. Lipman.)

MAINE

1. The greatest need of the State of Maine is an expansion of its local market.
2. Conservation and development of its water power.
3. Agriculture should be encouraged to insure the success of rural banks and stores.
4. Men trained in the knowledge of modern agriculture, farm values, agricultural finance, who may have the confidence of the city banks, thus encouraging them to make loans to farmers.
5. Agricultural instruction in the secondary schools.
6. More farm laborers at certain times of the year — harvest time especially.
7. Expert advice for the farmers on the packing and scientific marketing of their fruits and vegetables.
8. More intensive farming and orcharding.
9. More attention to the building up of the fertility of the soil.
10. Building up of the live stock industry, with a view to providing meat for home consumption.
11. Simpler and cheaper means of borrowing money, but care in providing for proper security.
12. Good roads which will be to the State as capital invested.
13. Better and more accurate system of accounting for crops and expenses.

14. The farmers of Maine should work and think for themselves.

Note.— Of all the farms in Maine 95.7 per cent. are operated by owners and managers.

(Extract from report submitted by the Governor of Maine.)

OUR PROBLEM IN NEW YORK

The most difficult problem in New York State is that of reducing the excessive expense of getting produce from the city terminals to the consumer. This is proved, not only in the city of New York, but in all the other cities in the state. The power to reduce this cost lies in the hands of the consumer himself and he must exercise this power if he is to cut down the cost of living.

For example, the producer and the transportation companies are doing pretty well to get milk to New York City at 4 cents per quart, oranges at \$2 per box of 200, and potatoes at 50 cents per bushel.

If consumers want to enjoy these wholesale prices by combining to purchase collectively, they have only to follow the example of those in Europe and form themselves into coöperative associations, furnish a stable buying power, and the producers will meet them at the city terminals at prices from 60 per cent. to 250 per cent. less than they pay at present, buying at retail.

Some non-perishable products can be bought at wholesale with almost as much saving as those above referred to. The Committee on Markets found that retail profits alone amounted to 100 per cent. on rice, 112 per cent. on peas, 114 per cent. on dried codfish and an average of over 50 per cent. on canned goods.

The coöperators in Europe are paying these profits to themselves, and at the same time they see that the goods are genuine and full measure.

Considering the meat supply, reports from most of the cities show that little or no reduction has been made to consumers and that in many cases even higher prices are being charged by retailers than last year. However, the wholesale prices for 1913 are reduced from 25 cents to 18 cents per pound for No. 1 ribs; from 28 cents to 21½ cents for No. 1 loins; from 20 cents to 17½ cents for pork per pound. This proves that the cost of production is less important than the cost of distribution.

COOPERATIVE ORGANIZATION OF AGRICULTURAL BUSINESS IN EUROPE

GOVERNMENT ENCOURAGEMENT

In Europe more than a generation ago the rapid growth of transportation facilities and industrial development by proper organization and combination began offering such inducements to labor that a very pronounced movement away from the farms and open country took place. The manufacturing companies, large stores, banking, insurance, real estate and mining corporations, together with the transportation companies both on land and sea, offered employment to common laborers, mechanics, engineers, chemists, superintendents, managers and bookkeepers which through shorter hours, easier or cleaner work and prompt payment tended more and more to draw people away from the farms. At the same time it proved to those who remained upon the land that they would also do well to combine.

As the governments desired to keep the rural population on the farms, recognizing that otherwise they would lose one of their greatest elements of strength, namely the farming population, they began to encourage rural organization to keep pace with commercial organization, passed laws in its favor and even granted exemptions and subsidies to further stimulate it. This policy has continued to the present time with excellent results.

PRIVATE INITIATIVE

Even preceding the government encouragement private initiative began the development of the business organization of the food producing classes. Many successful business men retired from their work in the cities and moved out into the open country where they took an active interest in introducing modern systematic business methods into their own farming operations, thus setting an example which was followed by their neighbors whom they helped to organize into combinations or associations which in France are called "Syndicats Agricoles" and which have fostered and served as a basis for every line of agricultural development and progress. An idea of what they are, will be given by



FIG. 154.— UNCOVERED MARKET, TOULOUSE, FRANCE.



FIG. 155.— CONGRESS OF VINYARDISTS, ST. GEORGES, FRANCE.

the following descriptions by the leading French authorities who have helped to build them up and are still active in their management. Because of the limited space in this report no samples of the constitution, bylaws, rules and laws or of the documentary forms and blanks which are used in these associations and their subsidiaries are included. However, they may be obtained in the form of a separate bulletin. The examples cited are taken mostly from the fields of dairying and fruit raising, because these two industries are important in New York State, thus affording opportunity for comparison. Grain production, cattle raising, production of hemp, silk, vegetables, and all other kinds of farming are organized in more or less similar manner.

AGENCIES FOR RURAL ORGANIZATION

Let us see how the European farmers have combined and what agencies have enabled them to do so with such remarkable success.

These agencies are the "Granges" or Farmers Unions of Europe, the most successful of which are the "Syndicats Agricoles" in France, "Sindacos Agrícolas" in Spain, the "Consorti Agrarii" in Italy and the corresponding associations of farmers in the other European countries.

The syndicates of France being typical, they are described in detail.

AGRICULTURAL COÖPERATION, ESTABLISHED THROUGH THE "SYNDICATS AGRICOLES" AND THEIR AFFILIATED SOCIETIES

These agricultural associations in France correspond to the "Granges" in America, from which they differ mainly in their perfection of business organization and the remarkable success attained in upbuilding the commercial side of agriculture.

OBJECTS

The general object of these "Syndicats" is to study and protect the economic interests of the farmers, and their special ends are: (1) To examine and point out all legislative and other reforms and improved methods; to uphold their cause before the governing authorities; to claim their realization, especially as regards the charges that weigh on land, the tariffs of the railways, com-

mercial treaties, customs and *octroi* duties, the rights of stall in fairs, markets, etc. (2) To spread agricultural teaching and knowledge of farming by courses of instruction, lectures, distribution of leaflets, establishment of libraries. (3) To urge and encourage essays on cultivation, on manures, on machines, on perfected implements, and everything which facilitates work, reduces the cost and increases the production. (4) To start and support institutions for agricultural credit, for production and sale, for assurance against fire and accidents, offices for information as to supply and demand, produce, fertilizers, cattle, seeds and agricultural machines. (5) To become agents for the sale of produce, for the purchase of fertilizers, seeds, implements, live stock, and all raw or manufactured materials, so as to increase the saving or profit its members. (6) To supervise the deliveries made by or to its members, so as to secure honesty and repress fraud. (7) To give advice and assistance on agricultural matters, to furnish arbitrators and experts on all legal agricultural questions.

Another "Syndicat" in its preface defined its objects to be, to fulfill the role of a society for the assistance of its members, to found mutual institutions of foresight and insurance, and to make united efforts to develop the moral, intellectual and agricultural status of its members; to raise their position; to attach the people to the soil and to the profession which has for centuries been the chief source of riches to the country; to make it honorable and lucrative and to bring about a fraternal union between the coöperative members.

The wisdom of joining all these important projects in the system turned out to be very marked and very successful in action. For, though some farmers might not require the services of the syndicate for, say, chemical fertilizer or implements, they were attracted to join it nevertheless, because it was affiliated to a union, and that union offered them its services for insurance of cattle, or against fire and accident, or for old age pensions, or credit, or for instruction and advice. There was nothing left out in the advantages offered by the unions; there was no one to whom an inducement was not offered, and all were brought in by the multiplicity of aids offered.

MEMBERSHIP

Proprietors, operators and managers of farms are eligible, the idea being to restrict the membership to persons actually engaged in agriculture.

The charter members pay into the treasury the money necessary to start their operations, usually from 40 cents to \$5 each, and receive shares bearing a limited interest of 5 per cent., and all members pay annual dues of about forty cents each and have only one vote each, regardless of the amount contributed toward the share capital.

SERVICES

The small isolated farmers were unable to take advantage of such services as (1) wholesale purchasing, (2) collective marketing, and the several mutual benefits of (3) coöperative use of expensive agricultural machinery, (4) manufacturing and transformation of farm products and insurance against loss by (5) fire, by (6) accidents to workmen, by (7) deaths to animals, (8) damage to crops by hail, floods or plant pests, and of (9) provident societies and (10) expert advice and instruction and (11) rural credit. By joining the syndicates all these advantages became theirs.

RESULTS

A few concrete examples of the results which are being enjoyed by the members of the syndicates are here given under the headings of the various services:

(1) The purchasing society of Loir-et-Cher of 15,000 members paying annual dues of 40 cents each, has purchased for them during the present year 30,000 tons of fertilizer at the rate of \$30 a ton which formerly cost them over \$45 a ton.

(2) The coöperative milk producers society of the Provinces of Tours, Nante, Bordeaux and Limoges having 80,000 members possessing 205,000 cows and 140 butter making plants, handles 332,000,000 quarts of milk and makes and sells 33,000,776 pounds of butter at the rate of $27\frac{1}{2}$ cents per pound and at a cost of manufacture of 11 per cent. of the selling price (three-tenths of a cent per quart of milk furnished). It also returns to them skimmed milk, which, valued at $\frac{4}{10}$ of a cent per quart,

is worth \$1,328,000, so that their total annual income amounts to \$10,400,000.

(3) A coöperative society for the collective use of agricultural machinery was formed by 200 farmers in a commune near Toulouse, each operating a farm of from 20 to 25 acres. It purchased a threshing set for \$1,000 and mowing machine for \$50. Each one uses this machinery in turn and pays at the rate of \$2 a day of ten hours for the threshing set, \$2 more for the engineman who goes with it and \$2 more for coal and oil necessary, and furnishes two farm laborers at a dollar a day each, so that the daily operating cost is \$8, or 80 cents per hour. A machine may thresh 50 bushels of grain per hour and it will cost $1\frac{6}{10}$ cents per bushel for the threshing, which of course could never be done for any such low price by hand. The mowing machine rents for 40 cents per day, the farmer furnishing the team and driver.

(4) A coöperative electric plant was built by a community of 400 people who possess a total of 2,800 acres, made up of farms of the average size of 35 acres. The electric power cost them from four to six cents per horse power hour, which is about half what it is furnished for by private companies, and has enabled them to do their milling and cutting of forage for their cattle and other mechanical operations of the farm for 25 per cent. less than they were formerly paying, to say nothing of the time saved and the advantage which they enjoy of having their houses lighted by electricity.

(5) In the Lower Pyrennes district the Farmers Mutual Fire Insurance Association has insured \$3,325,000 worth of buildings at an annual cost of \$4,066, which amounts to a rate of \$1.22 $\frac{1}{4}$ per \$1,000 assessed valuation. This amount of insurance is represented by 175 separate policies.

(6) A society for insuring against death and accident to workmen who may receive protection by a payment of a premium amounting to from 60 cents to \$2 per year for a farm of 25 acres, covering five persons, or at the rate of 80 cents to \$1.40 per person when traveling. In case of permanent disability or death the person involved will be guaranteed from \$100 to \$900 and any further claims than this by his heirs, will be taken care

of by the insurance company, provided a 25 per cent. additional premium is paid. In case of slight injury or temporary disability the injured party is paid from 15 cents to 40 cents per day.

(7) In coöperative cattle insurance where cows are worth \$83 each, an indemnity amounting to 70 per cent. less the value of the hide, meat and horns, etc., is paid in case of death to farmers, provided they have taken out a policy and paid a premium at the rate or $1\frac{1}{2}$ per cent. of the value of the animal, which in this case would amount to \$1.30 per year.

THE MORAL AND SOCIAL PURPOSES OF THE "SYNDICATS AGRICOLES" *

M. A. RIVERAIN, PRESIDENT OF THE FARMERS' "SYNDICATS" OF
LOIR-ET-CHER

Our president, impressed with the happy influence which may be exercised by agricultural syndicates upon the rural people from a moral and social point of view, has requested, as president of the oldest and perhaps the most extensive syndicate, our attention to a report on this question, which is of so much consequence.

In order to render our task easier and more clear we have thought it would be well to follow from its foundation in 1883 the development of the syndicate of the farmers of Loir-et-Cher (this syndicate was founded one year prior to the law of 1884). In order to have an adequate idea of the frauds of which our farmers were the victims and the excessive prices imposed upon them one should have lived in the epoch when this syndicate was founded. Under the initiative of the Professor of Agriculture, M. Tanveray, we grouped ourselves together for mutual protection against the abuses which prevailed.

We ought to say here that our beginning was very difficult, for the spirit of association was not what it is today, and those whose interests we wished to serve were sometimes not the least ardent of our opponents. But we foresaw all the advantages which

* Delivered at the Seventh Natural Congress of Mutual Coöperative Agricultural Societies at Clermont-Ferrand, August 20-24, 1913.

would accrue from buying in common and we had so much confidence in the future of the "Syndicats Agricoles" that in the second year we united with Professor Tanveray to draw up the by-laws which aided in putting into practice the law of 1884.

The recruiting of members in our "Syndicats" took place slowly for several years, for it was delayed by the establishment of numerous small town and county groups created into "Syndicats" to serve the political ambitions of certain people. We, however, had an entirely different purpose, for we wished above all to serve the interests of our agriculture and we never permitted politics to enter into our affairs. Farmers of all different opinions have united with us, and that perhaps is one of the principal reasons for our success.

Coming then to 1894 when in accord with our departmental professor we created an industrial organ of instruction which served as a means to facilitate communication between the "Syndicats," namely the journal called *l'Agriculture Pratique du Centre*.

By this time we began to see our ranks extending with regularity, and we thought that with such an army we would be able to enlarge our field of action with every chance of success, and events have proved that this view was correct.

The fact is that only well organized and well directed "Syndicats" have been able to attract a large membership, for confidence in the management is the main attraction at first, and when the reports of the business done have established between the management and the members confidence and sympathy one need not fear anything in the domain of mutuality.

It is thus that from the passage of the law of 1884 we have been able in a very short time to greatly develop agricultural credit because our clientele was ready to follow us, and we believe that it will be the same in all mutual institutions such as: Insurance against death of cattle, fire, loss of crops by hail and floods, etc., which we decided to organize in order to complete the scope of our operations. However, we should not forget that the purpose of the "Syndicats" does not end there, for it should also carry its action into the intellectual field.

We have endeavored to enlarge the horizon of the ideas and the knowledge of our farmers who, less than many others, have had



**FIG. 156.— POPLARS KEEPING A STREAM IN ITS BED AND SHADING
A ROAD IN FRANCE.**

occasion to travel. We have led them to see new countries and different kinds of cultivations from our own, and have conducted them into industrial centers which were entirely new to them. Each year since 1909 we have organized most interesting excursions.

From the beginning we have directed our farmers who are composed principally of vineyardists, toward the admirable vineyards of Bordelais where, thanks to the cordial reception given us, we have been able to enjoy and appreciate the most renowned vineyards. We have visited Languedoc, always charmed by the varied landscape which developed before our eyes, and above all at Carcassonne, at le Signan, at Norbonne and Et Cette. We have been treated to sumptuous banquets organized in our honor by the Presidents of the "Syndicats" whom we had received at the Congress at Blois the preceding year. Finally after several days we arrived at Montpellier to take part in the third national Congress of agricultural mutuality. Between sessions, excursions were organized, so that some of our party were enabled to go and visit our great port of Marseilles. The return journey was made by way of Auvergne and one can scarcely imagine the impression which this marvelous mountain country has produced upon the inhabitants of our plains.

The following year it was to the exposition at Brussels that we conducted the principal group of the members of our "Syndicat." At Paris we visited several factories for the construction of agricultural machinery and afterward on our journey the steel plant at Demain and the coal mines at Arenborg, the richest in the mining district of Anzin. At Brussels, besides visiting the exposition and the principal points of interest of the city, we went out and saw several of the most celebrated farms in Belgium, the proprietors of which showed to us with the most perfect courtesy their magnificent crops, their superb stables filled with the most perfect type of horses of the Belgian breed.

Our itinerary next took us to Bruges, the town famous for its old memories, and to Anvers with its admirable harbor, and finally to Ostend, the most celebrated beach in the world. As we returned, wishing to crown our journey with a lesson of things which interested everybody, we stopped at the experiment sta-

tion of Cappelle where our farmers were able to observe the methods of perfect selection of seeds and cereals and where they marveled at the sight of the magnificent crops of the north through which they were conducted by the courteous proprietors Messrs. Despres, so competent in agricultural matters.

Our members have become very fond of these journeys which gives them a new appreciation of things and which they would be unable alone to take advantage of. They talk freely in their home villages for they like to recount what they have seen and to share with those at home the impressions which they have brought from so far away. Thus the number of our excursions continues to increase and last year on the occasion of the general meeting we had over one hundred to visit the agricultural district of Grignon. The distinguished manager received us with much cordiality for he had previously made us a visit at Loir-et-Cher and his coöperation had been of great benefit to our "Syndicat" during its early stages. There also our journey was full of instruction.

Finally the day after the last general meeting which a great many of our members attend regularly, we united to the number of ninety-eight for a trip to visit the factory for harvesting machines of the *Societe La France* at Amiens. It should be said at this time that the interest of the excursion was doubled, for we were able to see in full operation a factory which was almost our own, for it makes the machines which we ourselves use to so much advantage. Filled with a desire to protect our country from the dangers to which it is exposed by allowing foreign manufacturers to furnish it with harvesting machines, the employment of which is becoming more common from year to year, we have taken a large part in the realization of this idea, and it is from among the members of our syndicate that we have raised the first capital necessary to establish the *Societe La France*, for they considered its establishment as an act of coöperation and an undertaking which their syndicate considered necessary, and in this, as in our other mutual undertakings, they have gone ahead with confidence. If, after having visited these factories they believed that their capital was well placed they have also carried away the conviction that with perfect equipment and

competent management our national industry is in a position to take the place which it deserves among our French farmers and they were proud to have aided in this patriotic work. Without wishing to make any propaganda, let me say here that our "Syndicats Agricoles" ought to occupy themselves in overcoming the prejudice which sometimes exists, that our French manufacturers are incapable of making good harvesting machinery, when, on the contrary, today we have seen that our agricultural machines are equal if not superior, and as to operation and durability they are better than the foreign manufactures.

All these lessons concern the second stage of the role of the "Syndicats Agricole," that is to say the intellectual side which should not be neglected after having satisfied the economic interests along the same line. We have also wished to teach our members to keep accounts, and we have written a treatise for their benefit on bookkeeping, which is none other than the method we have employed for forty years in our Domain d'Areines and the simplicity of which has induced a majority of our members to adopt it. At the end of the year we will organize the more complete course of bookkeeping.

It would be a good plan to have a winter school of agriculture in each county, and here too the "Syndicat" would come in happily to insure the recruiting of the pupils, for, in order to justify their establishment the schools ought to be attended above all by the sons of the small farmers, sixteen years of age at least, and who, since leaving the primary school have had practical experience in working on the farm. It is certain that such pupils with their hands somewhat calloused will better assimilate the lessons of the professor than their more delicate comrades who know next to nothing about practical farming. Further, in order that this instruction shall bring fruit, it ought to be organized for our young farmers with a program tending to make not scholars but farmers capable of finding in theory useful applications to render their calling easier and more profitable.

Until the present time our care has been directed above all to the head of the house. All our efforts have tended to aid him in his work, but we have left in the shade the housewife, the modest collaborator and nevertheless the most valuable in the

operation of the interior work of all our farms. We all know in fact that too often to be denied, the success of an agricultural enterprise depends upon the intelligence and activity of the farmer's wife, and no matter what the opportunities of the farm and the ability of the master, that it will not be fully successful unless seconded by his wife. It is in order to render homage to the domestic values of these noble women that the management of our "Syndicat" wishes yet to extend its moral and social scope to the organization of the convention destined to bring out the most worthy from the obscurity in which they have always lived, in according to them prizes, the value of which shall vary according to the number of their children and, above all, the number of those who have remained upon the land, and because of the great number of applicants we have had to limit the field of our efforts to the immediate surroundings of Vendome, reserving that of 1914 for the vicinity of Blois and that of 1915 for the territory surrounding Romoemtin.

It was on the 26th of last April that there took place in the magnificent courtyard of the Chateau de Blois, under the direction of the Prefet, this beautiful family festival of a unique character which brought together the children and the numerous friends of the eleven prize winners, all grandmothers between fifty and eighty years of age, who counted among them ninety-five children, all farmers, and one hundred and thirty-eight grandchildren who were going to imitate their parents. We would have wished that the rewards could have been worthy of the long life of work that each one of these prize winning women had known, and who received a sum of money and a medal of honor, the importance and the value of which varied according to their rating. But that which was most highly appreciated and brought happiness and pride to the whole family was the decoration of the order of agricultural merit which our venerable Minister, M. Ferand David has accorded to the two highest on the list. M. le Prefet, delegated by the Government, pinned on the two crosses amid the applause of the whole company.

It is certain that if our example were followed, the calling of

the farmer would gain more prestige than it has up to the present time received, and that it would at the same time cause a new sentiment of pride and regard for the land to develop in the hearts of the young people, and it is to be hoped that in a certain measure the depopulation of the open country may be in this manner overcome. Besides this the manifestation of April 26, has had a most happy effect upon the minds of the women of our country and then too, it has caused much ambition for the future in the creation of a farm woman's club of Loir-et-Cher. All this leads us to believe, because of the awakening which is manifest, that we will not have to struggle against discouraging indifference which one generally encounters in similar undertakings, and in organizing at the points most frequented by our communities some lectures which shall have for an object the instruction of the women as to the best means of making the farm profitable. We will thus serve the economic interests of our agriculture and, what is still more important, we will raise the moral and intellectual level of those in whom we must place our hope.

We have wished to demonstrate by deeds all that it is possible to do with "The Syndicats Agricoles," as well in the intellectual and moral field as in that of the economic, and we hope that we have been able to convince you. It is true that the results are due to thirty years of sustained effort and you may know of struggles where it has been necessary to make proof of energy and a spirit of independence, but the greatness of our work is not to be measured by the difficulties passed through, which besides have not been able to stop us, but by the knowledge of the service which has been rendered to the country and especially to the interests of our agriculture. All the "Syndicats" may be advanced along the same lines, perhaps not always by the same means, since each must necessarily vary according to the region and character of the people. Any kind of initiative is permissible. Each can choose his own group and judgment shall be passed upon the results obtained.

According to the annual statements of the operations for 1912, covering the several mutual departments organized by the

"Farmer's Syndicat of Loir-et-Cher," the following figures are given:

Fertilized furnished, 246,000 tons, at \$22.43.....	\$552,000
Cattle feed furnished, 23,400 tons, at \$40.70.....	95,500
Seed furnished, 734,200 pounds, at \$4.80 per 100 pounds	33,600
Miscellaneous products, 1,552 44/100 tons, at about \$84 per ton	132,450
Agricultural machinery and tools.....	100,800
<hr/>	
Total purchases	\$914,350
<hr/>	

Agricultural Credit

Bills discounted	\$1,271,000
Long term loans	22,530
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On May 30, 1913, the Syndicat had 16,762 members.

DESCRIPTION OF A FEDERATION OF THE AGRICULTURAL "SYNDICATS" AND AFFILIATED ASSOCIATIONS

FOUNDED OCTOBER 15, 1888

21 RUE D'ALGERIE, LYONS

The purpose is to organize agricultural business, so as to render it more profitable, more stable and more agreeable to pursue. Such is the object undertaken by the "Syndicats Agricoles," which are grouped either in unions of syndicats themselves, of the affiliated associations, or united in regional groups.

Far be it from us to claim that the "Syndicats" have created everything in our beautiful country of France, for a strong race of farmers and workmen have been for a considerable period, bringing the farms into their present prosperous condition. However, it may be fairly conceded that there is progress to be made in overcoming routine prejudice (antiquated methods), unnecessary expenses and in obtaining the most profitable results generally.

The isolated farmer is in a helpless situation; he can not protest successfully against overcharges of duties and taxes; he can not defend himself against the exploitation, to which he is frequently subjected by merchants and intermediaries; he can not assure himself against frauds; he can not understand perfected methods of increasing the production in proportion to the rising expense of operation,—in short he is unable to enjoy the advantages provided by the law for insurance against agricultural risks and for such borrowing facilities as he may require.

Association provides the power which is lacking in its individual members; and by it the process of agriculture must be effected. The results obtained may be used as a gauge indicating what may be expected in the future, and it is with certainty that the farmers are being conducted in the road of progress, through their agricultural organizations and the multiplication of their "Syndicats," and the several mutual associations subsidiary thereto.

Services rendered: The considerable advantages which the "Syndicats" have procured for their members are well demonstrated by a few figures which follow. "La Coöperative Agricole du Sud-Est" (federation of syndicates), which by-the-way, does not handle all the business of the "Syndicats," has, from 1893 to 1912, realized total sales in excess of 44,000,000 francs (\$8,800,000), and returned to the "Syndicat" 895,101.25 francs (\$179,020.25), which, but for the "Syndicats" would have been lost to the farmers.

The Credit and Mutual Insurance Associations ("Les Caisses de Credit, les Caisses Mutuelles d'assurance"), render analagous services. Thus the insured members of our "Caisses Mutuelles d'Incendie" have paid a premium of less than 20 per cent., but they have put aside reserves which, for the first ten years since their establishment have not fallen below 500,000 francs, thus permitting the fortunate members to do away with their premium payments in course of time.

These reserves in their turn, serve as a source of credit, and the above figures show conclusively that the "Syndicats" and their affiliated associations are helpful to farming and render more profitable its pursuit. One might cite other advantages

which, though not capable of being translated in money value (en francs), are none the less eloquent.

Why should not these simplifications of progressive methods of cultivation and this technical knowledge have resulted profitably? They have been introduced by means of conferences and the distribution of pamphlets by the 50,000 copies of the *Bulletin du Sud-Est* distributed monthly, and the 10,000 *Bulletins du Beaujolais* and still others — by the 200,000 copies of the Annual Almanac, and by the numerous “Instituteurs,” under the auspices of the “Syndicats,” and in which the scholars have obtained in fifteen years nearly 15,000 certificates, and 3,300 diplomas.

One ought not to forget the effect upon the authorities and the public which is exercised by the “Syndicats” and the Unions, as well as the Chambers of Agriculture, and the benefits of bringing together men who, except for these institutions, would never have come in contact with one another.

In accomplishing all this and many other things besides, the “Syndicats” have fulfilled their program, which consists in organizing the farms in such a way as to render their calling more fruitful, more stable and more agreeable. They have done it too without violence and without injustice, with the constant watchword “d’atteindre” as recommended in the last will and testament of Emile Duport, “avec l’aide de Dieu la Pïax sociale,” (the attainment with the aid of the Almighty of social well-being). They have paved the way for influential men to aid in the development of the future of their country.

It is to such men that we address ourselves, presenting to them the fundamental principle: that both local and regional associations should be created. The local “Syndicats” should be communal, as far as possible, and it is absolutely essential that they be co-ordinated, supported and federated under regional associations.

THE “SYNDICATS”

These associations are the centers of rural life, around which are grouped the affiliated associations which it may be necessary to create. They are authorized by the law of the 21st of March



FIG. 157.—FAMILY OF FARMERS, FRANCE.



FIG. 158.—FARM VILLAGE, CENTRAL FRANCE.

1884 (see Manual of Agricultural Syndicates by H. de Gailhard-Bancel, which sells for one franc. Bylaws printed at the rate of 0.05 l'ex).

Foundation

Three copies of the constitution adopted by the General Assembly, and three copies of the list of members of each "Syndicat" are required to be deposited with the mayor. These documents have to be certified and signed by the president. The mayor required to deliver a receipt ("recepisse").

Composition

The "Syndicats" must be made up exclusively from persons engaged in the pursuit of agriculture, as agriculturists, farm proprietors, those enjoying the use of farms ("usufruitiers"), farm superintendents, those owning and operating farms, renters and share tenants, farm laborers, etc.

Object

The "Syndicat" has for its general purposes the study and defense of the interests of agriculture, and for its special object:

1. To encourage and favor improved methods of farm cultivation by means of fertilization, by the use of carefully selected seed, perfected farm implements and all other means proper for facilitating farm labor, increasing production, diminishing the cost of operation and reducing as much as possible the cost of living in the country;
2. To encourage instruction in agriculture and to disseminate agricultural knowledge by means of conferences and such other means as may be recognized as useful;
3. To facilitate the purchase of fertilizers, farm implements, animals, seeds and all materials, whether raw or manufactured, which are useful in agriculture;
4. To acquire agricultural machinery and implements for the purpose of renting them for the exclusive use to their members;
5. To provide for the sale of farm products;
6. To give advice and consultation on subjects which concern agriculture, furnish quotations of the sale price of farm products

in the markets, and furnish arbitrators and experts to solve legal questions;

7. Finally to encourage agricultural operations by the organization of conventions, the creation of bureaus of information, and in general to occupy themselves with everything that may be useful to the interests of agriculture, such as provision against the risks due to accidents to workmen, animals and buildings through fire, etc., and institutions for mutual aid, pensioning of infirm people and those too old to work, institutions for agricultural credit, and coöperative associations, etc.

"Moyens"—As a means of attaining these several ends the "Syndicats" have a "patrimoine" provided for by fees, dues, membership assessments, etc.

The bulletin is sent specially to each if desired, but ordinarily the members of each "Syndicat" receive a reduced rate of fifty centimes a year (10 cents), entitling them to the *Bulletin de l'Union du Sud-Est*, which appears once a month.

The "Almanach" of the Union is provided for the members of all affiliated "Syndicats."

"Reunions" and "Conferences" are held as frequently as possible, sometimes once a month, without counting the General Assemblies.

Agricultural instruction is also used as a means for promoting progress. Every "Syndicat" has an office through which the commands of the members may be transmitted and the policies against accident to workmen may be taken out and sent to the Department of "Thrift." Agricultural machinery such as threshing machines, reapers and rollers for the use of the members are kept in the depot of the "Syndicat."

The "Syndicat" establishes affiliated societies for those who are unable to work for agricultural credit, for insurance against fire risk, accidents and death to workmen or to animals and against damage to the crops by hail, etc.

LES UNIONS

The "Syndicats" when isolated are powerless.

They are in need of common services for instruction and counsel. It is therefore indispensable that they shall attach

themselves to a union sufficiently powerful in its organization to furnish them the services, the information, and the council which they require.

In our locality, and for that matter throughout all France, there is no more powerful coördinating institution than "l'Union du Sud-Est," having its office at Lyon, 21 Rue d'Algerie.

"L'Union due Sud-Est" has affiliated its "Syndicats" to "l'Union Centrale des Agriculteurs de France" which renders many services of a general character and the isolated "Syndicats" could never get along without it. A number of sub-unions have been formed, such as "l'Union de la Drome et de l'Ardecche," one of the oldest unions in France, and "l'Union de la Loire," so active in propagating agricultural instruction, and "l'Union Beaujolaise," above all relating to vine cultivation. Although these sub-unions voluntarily limit their activity to special purposes, they do not dispense by any means with their adherence to "l'Union du Sud-Est."

L'Union du Sed-Est

This association covers ten departments: l'Ain, l'Ardecche, la Drome, l'Isere, la Loire, la Haute-Loire, le Rhone, Saone-et-Loire, Savoie, Haute-Savoie and has some syndicates in Hautes-Alpes, le Jura, le Puy-de-Dome.

It has been in existence for twenty-five years having been founded in 1888, and has grown up under the impulse of its eminent president Emile Duport, and has attained in 1913 the number of five hundred subsidiary "Syndicats."

Affiliation to the "Union Du-Sud-Est"

The application to be sent to the President of the Union includes:

- (a) A request to be admitted as an affiliated association.
- (b) A copy of the minutes of the "Chambre Syndicale" authorizing the request for affiliation.
- (c) A sample of the constitution with a list of the members of the "Chambre Syndicale."
- (d) A copy of the "recepisse" delivered by the Mayor.

All these documents certified and signed by the President.

The "Syndicats" affiliated to the Union pay for each season, dues amounting to ten centimes (2 cents) per member with a minimum of three francs (60 cents), (the season beginning October 1st). See note on the admission of "Syndicats" into the Union "du Sud-Est."

Services of the Union

The Union places at the disposition of the "Syndicats:"

1. Its technical services, engineers, "agronomes," chemists, accountants, and inspectors.
2. Its committee of arbitration and legislation.
3. Its bulletin.
4. Its almanach.
5. Its library.
6. Its pamphlets, tracts, and printed constitutions.
7. Its agricultural instruction organization.
8. Its "Courtier" and its coöperative service.

Bulletin

"L'Union de Sud-Est" publishes a monthly journal of thirty-two pages with a circulation of 50,000 copies. It advises most strenuously that its affiliated "Syndicats" shall subscribe for enough copies for each member; for it has been noted that only those associations which provide the Bulletin for their members remain prosperous. The price of subscription is fifty centimes (10 cents) per year to those "Syndicats" which subscribe for enough copies for all their members at once, and two francs (40 cents) for nonmembers. Subscriptions are due every three months.

Agricultural Instruction

"L'Union" encourages agricultural and domestic science instruction in the primary schools as well as in the establishments "post scolaires":

By its domestic science course both during the school year and during the vacation period which, in six years, has 272 pupils.

By its "Enseignement post-Scolaire" by correspondence for boys which permits groups from the "Syndicat" courses for

evening study, and manual training classes to be given instruction by competent teachers employed by the Union.

By the publication of books and manuals (*Manuel d'Enseignement menager agricole* par P. de Monicault 2.30 francs.)

By the deliverance to the teachers of diplomas and medals for distribution among the pupils, by the granting of certificates of the first grade (14,362 in fifteen years), and of diplomas of the second grade (3,286 in fifteen years).

There was created in 1912 for the young girls a prize for practical studies in domestic science ("Agricole"), including sewing, laundry work, cooking, hygiene, gardening, care of the house, care of milk, etc. A committee of women has undertaken to encourage the promotion of good housekeepers and good mothers of families. In 1913 prizes have also been provided for studies in practical agriculture for the boys, following their instruction in the correspondence courses.

"Courtier" or Agent

A "Courtier" who is under the supervision of the Union is at the disposition of the members to furnish them with such merchandise as is not handled by the agricultural coöperative societies, and he is also in charge, and this is his principal role, of facilitating the sale of such agricultural products as wheat, hay, straw, oats, wine, etc., and in bringing together producers and consumers. He is especially charged with arranging for the purchase of wheat and oats of the members by the authorities in charge of the garrisons of the army.

"LA COÖPERATIVE"

"La Coöperative" is an anonymous society which enjoys the greatest commercial latitude. It delivers to the affiliated "Syndicats" of the "Union du Sud-Est" and their members fertilizers, cattle feed, agricultural machinery and implements, etc., which they require. It delivers also, directly to the members ("Syndiques") adherent to it such provisions as groceries, etc., with which the rigorous, judicial ruling of the court does not permit the "Syndicats" to deal.

In every case the Coöperative secures for its members through

its powerful organization, products at low price and of guaranteed quality.

The Coöperative never gives anything to its stockholders other than the interest on their shares; if there are profits after the setting aside of the reserve fund or the funds for agricultural purposes, these are distributed in the form of a rebate to the "Syndicat" thus forming an important source of revenue. Since the formation of the "Syndicat" these rebates have amounted to more than a million francs.

Requirements for Admission to the "Coöperative"

All "Syndicats" desiring to have their members admitted as adherents to the "Coöperative" must first be themselves admitted to membership in the "Union du Sud-Est."

Letter of Application

The President of the "Syndicat" is required to make application for membership to the President of the "Coöperative" upon a blank form furnished for that purpose which only needs to be signed and returned.

Shares of the "Coöperative"

Each "Syndicat" must subscribe at the moment of its admission, to at least one share of the "Coöperative;" this subscription is really only a formality because for a long time there have been no shares for sale.

Requirements for Admission

Besides the subscription of one or more shares the "Syndicat" must turn in for each one of its members an entrance fee of two francs (40 cents), either taking these two francs from the account of each member, or requiring each one to advance it. This membership rests as the possession of the one who turns it in, and it is returned in case of exclusion or dismissal. In case of the death of an adherent his membership remains with the "Coöperative," to be turned into the reserve.

In order to aid the "Syndicat" when they are first established, the "Coöperative" instead of requiring them to turn in these two franc entrance fees, may consent to advance this money for



FIG. 159.—VALLEY OF SARRANCE, FRENCH PYRENEES.

them at 5 per cent., and to repay itself by retaining either entirely or partially, such profits as would revert to the "Syndicat" at the end of each season, because of the purchases which it makes through the "Coöperative."

List of Members

Finally there must be sent in at the same time with a request for membership a list of all the adherents to the "Syndicat" making the application. (See notes on the "Coöperative Agricole du Sud-Est").

INSURANCE AGAINST ACCIDENT

The "Coöperative" has made an advantageous arrangement with the company "La Providence" for guaranteeing its members against farm accident. The premium is calculated per hectare (2 acres) and varies from sixty centimes (12 cents) to one franc, ten centimes (22 cents), according to the kind of farming and the amount which is to be paid to the workman each day that he may be incapacitated for work. The indemnity is paid promptly after the eleventh day from the accident or not at all.

ADDITIONAL SERVICES

The "Syndicats" are unable to do everything for themselves and they are frequently obliged to create annexed organizations legally distinct but closely connected just the same. It may be noted that for each local organization of this kind there is a corresponding regional organization created under the "Union du Sud-Est" in a manner parallel to the relationship between the local annexed association and its "Syndicat". It is indispensable that such a regional institution shall be allied to the Union, if it is work to the advantage and for the security of its members.

MUTUAL SOCIETIES FOR CARE OF THE INFIRM OR DISABLED
("Union des Societes de Secours et de Retraites du Sud-Est")
Rue d'Algerie, 21.

It is very useful to create in connection with the "Syndicats" mutual associations for the care of the infirm or disabled, in con-

DEPARTMENT OF AGRICULTURE

with the law of April 1, 1902. These societies
their members, optionally, can in case of sickness
or death, receive the sum of \$1000 and funeral expenses
of \$1000, more for the individual with a family.
In the case of death in case of disability, see article
of the law of A. 1000.

Article 10. - These societies are to be organized
in accordance with the laws and regulations of the Department
of Agriculture.

Article 11. - The societies shall be organized
in accordance with the laws and regulations of the Department
of Agriculture.

ARTICLE 12. - THE SOCIETIES SHALL BE ORGANIZED

in accordance with the laws and regulations of the Department
of Agriculture.

Article 13. - The societies shall be organized
in accordance with the laws and regulations of the Department
of Agriculture.

Article 14. - The societies shall be organized
in accordance with the laws and regulations of the Department
of Agriculture.

Article 15. - The societies shall be organized
in accordance with the laws and regulations of the Department
of Agriculture.

Article 16. - The societies shall be organized
in accordance with the laws and regulations of the Department
of Agriculture.

Agricole Incendie par Pelud et A. des Essarts, pamphlet 1.25 francs.)

Affiliation to the Regional Reinsurance Association.— A document containing the following is required:

1. A request for affiliation.
2. List of members on the governing board.
3. Certified copy of the constitution countersigned by the President.
4. Copy of the "recepisse" delivered by the Mayor.

All these documents are provided in blank form by the Regional, and only have to be filled in, signed and returned.

MUTUAL LIVE STOCK INSURANCE ASSOCIATIONS (DEATH OF ANIMALS)

Regional Reinsurance Associations

The same laws covering fire insurance associations are applicable to these, and the same formality is required for establishing them. They only have a right to subsidy from the state when they are reinsured, as indicated in a circular published by the Minister of Agriculture. (See "La Prevoyance contre le Mortalite du Betail" according to Riboud, by L. Kopp, pamphlet 35 centimes.)

LOCAL SOCIETIES FOR MUTUAL AGRICULTURAL CREDIT

Regional Societies

It is well to establish, in connection with the "Syndicats" credit associations for the purpose of providing facilities to their members for savings and for loans. They will have, as a basis, local societies covering a limited area established either on the Raiffeisen-Durand principle, or according to the law of November 5, 1894, either with limited or unlimited liability.

In the second place the regional credit association created in accordance with the law of March 31, 1899, discounts the paper of the locals, makes advances to them, provides long term loans on advantageous terms through the gratuitous advances made by the state, which on March 31 last had reached the sum of 1,335,000 francs.

CONCLUSION

Undoubtedly we have not explored all the activities of the "Syndicats;" we have not made any mention of the societies for the protection of damage to crops by hail, nor to live stock breeders' associations, but we hope that we have said enough to persuade our readers that the work of the "Syndicats" has produced fruitful results, and with the example of the 500 "Syndicats" already in existence the thing to do is to keep on establishing more, based on the experience of those which are operating so successfully.

Those who desire to avail themselves of our service and experience are requested to come, therefore, with all confidence, to L'Union du Sud-Est, des Syndicats Agricoles, Rue d'Algerie 21, Lyon.



A Castilian Type

AGRICULTURAL CONDITIONS IN THE SEVERAL EUROPEAN COUNTRIES*

EXTRACTS FROM SPEECHES MADE BEFORE THE AMERICAN COM-
MISSION AT THE INTERNATIONAL INSTITUTE OF AGRICULTURE,
MAY 14, 1913.

COÖPERATIVE DAIRYING

Dr. Casalini

Coöperative dairying represents one of the oldest forms of coöperation in Italy. Ever since the fourteenth and fifteenth centuries coöperative associations for dairying have existed in the north of Italy. These associations are organized in three ways. The oldest is known as the "turno familiare," when all the milk of the associated farmers is worked in turn in the dairy of one of the members, while each member sells his own product on his own account. The second system is that by which the associated farmers rent a common dairy building and employ a head dairyman, to whom all the milk of the associated farmers is consigned to be transformed into butter and cheese, but the product is still sold by each individual member. But these two primitive forms of coöperative dairying are being rapidly replaced by the more perfected system of coöperative dairying under which all the members of an association bring their milk to a common dairy where it is worked up and sold by the dairy on account of all the members. There are at present in the north of Italy 1,075 coöperative dairies; of these, 426 are in Venetia, 282 in Piedmont, 258 in Lombardy, 9 in Emilia, 3 in Liguria and 10 in central and southern Italy and the islands. The largest coöperative dairy in Italy is that at Soresina near Cremona, which works daily 92,400 quarts of milk and is the biggest enterprise of its kind anywhere.

Q. Can the commission obtain copies of pamphlets describing the organization of Italian coöperative creameries? A. Publications on the subject will be placed at the service of the commission.

Mr. Luzzatti.—I should like to call the attention of the commission to the great technical improvements in the dairying industry and in the quality of the output which has resulted from coöperation in this field.

* It has seemed advisable to quote the opinions of the eminent agricultural authorities in each country wherever possible.

Q. Do the dairying associations have cow testing associations connected with them? A. So far such cow testing associations have not been formed, but their organization is now being considered.

Q. Do the members of these coöperative dairying associations do general farming or only dairying farming? A. General farming.

Q. What is the average number of cows to an average dairy? A. One hundred to one hundred and fifty to the dairy. Each individual farmer probably has from two to three. It is only a large dairy, such as that at Soresina, which works for a few farms, each possessing a large number of live stock.

Q. Do farmers send the whole milk to the dairy? A. They are supposed to send the whole milk.

Q. Are dairying associations assisting farmers in the purchase of other farm requisites, such as fertilizers, etc., or only the things necessary for the dairy? A. A few of these coöperative dairies assist farmers in the purchase of manures and other farm requisites, but they are a minority. Some of these dairies have organized among their members cattle insurance societies. The tendency, however, is for dairies to limit themselves to dairy operations. In a few places they attend to the purchase of commodities, but the general tendency is not to branch out.

Q. Do coöperative dairies sell other products as well as butter and cheese? A. A very small minority sell milk also, but they are mostly limited to the sale of cheese, and sometimes also of butter.

Q. Do such coöperative dairies sell milk in cities? A. The sale of milk in cities is carried on by private parties and by large commercial companies. In Genoa and Milan coöperative societies have been formed which purchase milk from the farmers in order to sell it in the cities.

Q. Are the farmers paid individually for the butter and cheese produced from their milk, or are these products sold coöperatively and the profits distributed? A. The farmers are paid for their milk by weight. At the end of each week they receive from $2\frac{1}{3}$ to $3\frac{1}{2}$ cts. per quart of milk supplied and at the end of the year the profits realized on the sale of the butter and cheese are divided up among the members according to the amount of milk each has

supplied to the dairy. A certain sum is set aside and placed in the reserve fund of the association.

Q. How large a zone in miles (diameter) does the average co-operative dairy cover? A. Some few dairies receive milk from outlying districts, but, as a rule, it is obtained from within a radius of $2\frac{1}{2}$ to 3 miles from the dairy. There are industrial dairies which receive their milk from 25 and even 45 miles, but they are the exception. Some of the milk sold in Rome comes from Milan.

Q. Approximately how much more do the farmers receive by this co-operative method of selling than they did by the primitive method? A. It is difficult to reply to that question on account of the great fluctuation in the price of milk in late years. Milk has risen from 2 cents per quart to as much as 5 cents per quart. It may be said, however, that farmers selling their milk to the co-operative dairy now receive from $3\frac{3}{4}$ cents to 4 cents, while others in the same districts selling to private parties receive only $3\frac{1}{4}$ cents. It should also be borne in mind in this connection that the organization of the co-operative dairies has proved a market for milk in many localities where formerly it was an unsaleable product.

Q. Does milk with a higher percentage of fat bring a higher price? A. There is no distinction drawn in the price paid for milk based on the fat it contains. That method of testing is not employed. It must be remembered that the milk is obtained from cows of the same breed, in the same district, fed on the same pasture lands, and, therefore, the quality of the milk is fairly homogeneous.

Q. Do dairy farmers buy much commercial feed, or do they feed their stock on forage grown on their farms? A. The average small farmer who supplies milk to the co-operative dairy feeds his stock on his own forage. On certain large estates artificial feeds are used, but as a rule the animals are fed on the produce of the farm.

Q. Is the breed of cattle of a specific dairy type, or are they used for beef as well as milk? A. This differs in different parts of the country. In the Alpine districts the cattle are used exclusively for dairy purposes, but in other districts they are used for farm work as well as milk.

Q. What is done with the calves? Are they sold for veal, or are they kept for use on the farm? A. There are sections where calves are sold for veal. It is only in exceptional cases that they are kept to be fattened.

Q. Can we get any reports on the average production of milk per cow per year? A. The average production of milk in Italy is from 2,130 quarts to 2,560 quarts per cow per annum.

Q. Is there any coöperative effort for selling milk in the cities? A. Efforts have been made in this direction at Bergamo and Piacenza, but they failed. The city of Aquila has begun the municipal sale of milk supplied by mutual cattle-insurance societies.

USE OF CITY SEWAGE IN AGRICULTURE

Professor Contini

Of course, this is a matter of the highest importance for hygiene, the city and agriculture. Some twenty years ago the whole system of sewage and drainage of Milan was reformed; a system of carrying away refuse by drainage was adopted, by which the city is served by great sewers, and all sewage is carried off and deposited outside the southern or lower portion of the city. The sewage is collected from the local drains into great collecting sewers, which go south of the city out into the country. Fortunately for this Province, a magnificent system of irrigation has been handed down to us from ancient times, which is a source of great wealth. These sewers are emptied into great irrigation canals, which distribute the water over the country. The fields are quite level, and the water is distributed over them very thinly, flowing over the fields so gently that it does not remove any of the soil.

In order to give an idea of the results of this system on the field, I would state that the yield of forage and grass crops raised near Milan is very high — as much as nine crops are raised annually, the last crop being cut about December 15. Although the winters are very severe, by keeping water over the fields they are always green, and inactive for only about forty days. This system of agriculture has helped in a great measure to develop dairying, cheese-making, etc. A large number of cattle are kept in the stables. This has led to a great development

of the butter and cheese industry, these products being largely exported. A large quantity of condensed milk is also made here and sold in England.

The sewage system cost an enormous sum to inaugurate. The income to cover the expense was obtained by taxation, every house-owner having to pay a municipal tax for use for the sewage system. The tax is apportioned according to the value of the house property.

Now comes the other question of disposing of the street and house sweepings. Street sweeping is a municipal service performed by scavengers. This part of the city's refuse is used to enrich the country. The street sweepings are taken to great refuse dumps where they are sorted. The paper is sold to paper factories, other items to the respective dealers, and the street sweepings to the small farmers up in the northern section of the Lombardy plains, where they have a very intensive system of agriculture. As these sweepings are of very good quality they sell at a good price for manuring. They are distributed through a system of light railways and electric trams. The income, however, derived from the sale of such refuse does not cover the outlay made by the city for the scavenger service.

Q. Who owns the land irrigated by the liquid sewage? A. The largest landowners are the Superior Hospital of Milan and the Charity Society. These are the largest landowners in the Province of Milan.

Q. What is the cost, per hectare (2.47 acres) of irrigation? A. There are two different tariffs, one for summer and one for winter. The cost of 35 quarts per second is \$5,000 if purchased permanently, or \$240 a year.

Q. What is the price paid for the solid manure? A. Twenty cents for 220 pounds.

Q. Are there any offensive odors arising from the canals or the irrigated fields? A. Nothing particularly offensive. There was much scientific debate as to whether such canals were injurious to health and the decision has been reached that they are not injurious — that the land acts as a filter, purifying the water after it has passed over a certain distance.

Q. What becomes of the water after it has served its purpose

and irrigated the land? A. It returns to the canal and is used over again.

AGRICULTURAL CONDITIONS IN LOMBARDY

Prof. Soresi, Traveling Professor of Agriculture

The Province of Milan occupies an area of 150,000 hectares (375,000 acres) under cultivation. The soil is partly gravel and partly sand, and had it not been for the assiduous care of the farmer the soil could not have attained the high degree of fertility now prevailing. This high development of agriculture is due to cultivation, and more especially to the magnificent irrigation system to which the wealth and fertility of this Province is due. The water used for irrigation is largely obtained from Lakes Como and Maggiore. The rivers Adda and Ticino contribute a large amount of water used for these irrigation purposes. The first canal was derived from the river Adda and was built in the year 1200, with a water force of about 140 cubic feet per second. The other main canal comes from the Ticino and has a capacity of 350 cubic feet per second. The first of these canals irrigates the eastern section of the Province of Lodi. The other great irrigation canal from the Ticino river was built as far back as 1200, during the glorious period of the life of the Communes, when victories and successes were commemorated by carrying out great works of irrigation for the benefit of the Province. The other two great irrigation canals, the Vetaglio and the Naviglio, form an artificial lake, and Napoleon constructed another canal to carry the water out into the country. The total amount of water conveyed for irrigation purposes by these two canals is about 1,050 cubic feet of water per second.

These irrigation waters are spread over the southern section of the Province. The northern section has quite a different system of farming. In the northern part the farms are in small holdings of about 2 hectares (5 acres) each. The rotation is a 4-year one — wheat, clover, wheat, Indian corn. These farmers use great quantities of manures and chemical fertilizers, and the fields are worked by South Bend and Oliver plows. The great feature of the agriculture of this section is the cultivation of the silkworm. Each of these farmers working a farm of about 2 hectares raises

from 30 to 40 grams (1,000 grams equals 2.2 pounds) of silkworm eggs. The production of cocoons is about 50 kilograms (110 pounds) of cocoons per ounce of egg; the value of silk is about 60 cents per kilogram of cocoons, so the growers get about \$30 worth of silk per ounce of eggs. The total amount raised in the northern section of the Province of Milan is reckoned at 4,000,000 grams of silk cocoons.

Another specialty of the agriculture in the northern section of the Province of Milan is the raising of fatted calves. The farmers generally have 2 or 3 milch cows and the calves are fattened and sold in the market of Milan. The southern section of the Province is irrigated and the agriculture is quite different. Instead of farms 2 hectares in size, the average farm is about 200 hectares. The rotation in this section is wheat and clover, the clover lasting from two to three years on an average. Then the field is plowed and rice is raised. The rice is grown for two consecutive years followed by Indian corn, then wheat again, which recommences the rotation. Forage crops are a great feature of this section, and you will understand their importance when you learn that there is one cow per hectare of land in this part. There are many herds of from 100 to 150 cows. The average production of milk is reckoned at from 30 to 35 hectoliters (3,000 to 3,500 quarts) per cow per year. This milk is used for divers purposes; in the first place for cheese making. The cheese making is generally conducted in dairies on the farm, but in some parts it is sent to be worked up in great industrial dairies. Butter is the principal product in most of the sections.

The yield of rice, in spite of the diseases prevailing in recent years, amounts to 11,000 pounds per hectare (83 bushels per acre). Indian corn also yields well, about the same as rice. Wheat yields between 4,840 and 5,500 pounds per hectare (40 bushels per acre). The average yield of forage crops in rotation is from 19,800 to 22,000 pounds per hectare (5 tons per acre). The yield obtained in the flooded (marcite) fields is over 33,000 pounds of hay per hectare (7½ tons per acre).

The traveling professors of agriculture carry on their educational work by lectures and field demonstrations. A course of

lectures is given and a number of experiment fields are worked each year. Besides giving lectures, bulletins are printed, by means of which information is also disseminated. The traveling professors also make a specialty of improving the breed of live stock by encouraging fairs, shows and the importation of breeding animals. They also give practical training to herdsmen in model farms with all appliances, so as to train experts in stock breeding. They teach the rational use of machinery and do their best to raise the educational level of the farm laborer, as scientific agriculture requires men of the highest grade of intelligence. It should be noted that the organizers of both the agricultural associations and the traveling professorships of agriculture come from the Agricultural High School of Milan.

Q. At what age are fatted calves sold for the market? A. From 70 to 80 days old. The calves weigh from 140 to 150 kilograms (308 to 330 pounds).

Q. Is butter marketed coöperatively? A. There has been a movement in that direction, but so far it has been unsuccessful. Butter for exportation is marketed by large commercial enterprises.

Q. Does the government provide any inspection of the herds? A. No, only the milk sold in the city is inspected. Milk used for butter is not inspected.

Q. Must milk contain a certain proportion of fat in order to be sold? A. It must contain $2\frac{1}{2}$ per cent. Skim milk can be sold, but it must be stated that it is skim milk.

Q. What is the approximate market value of 220 pounds (a quintal) of wheat? A. From \$5.10 to \$5.80 (\$1.39 to \$1.58 per bushel).

Q. What is the price of Indian corn? A. From \$4.40 to \$5.80 per 220 pounds (quintal) (\$1.10 to \$1.45 per bushel).

Q. What is the price of potatoes? A. The regular price is about \$2 per 220 pounds (quintal) (90 cents per 100 pounds).

Q. What is the recent price of hay? A. There is a very great difference in the price of hay, according to its quality. The average price of hay from permanent meadowlands is about \$2 per 220 pounds (\$18 per ton); but hay from rotation crops would be lower.

THE COÖPERATIVE DAIRY

Every member is distinguished by a number. The milk received from each member is weighed. A sample of the milk is drawn off before it is weighed and is measured into a small measuring tube, and every morning an analysis is made to determine both the fat content and the purity of the milk. The cans of each member are washed, sterilized, and put out to dry, and then they are deposited in the local storeroom ready for removal on the following morning. By means of a tramway the milk goes directly into copper kettles where it is made into cheese. The kettles are all heated by steam. We make a type of cheese, all of which is exported to North America and is called Roman cheese. After the cheese has formed, the milk is drawn from the kettles by suction into a reservoir, whence it is pumped into a strainer. Then the cheese goes to the magazines for salting. There the cheese remains four months passing through the stages of curing and seasoning. We always maintain in the curing rooms a temperature of 14 degrees (cent.). We also have a refrigerating plant. The cheese is ready to eat in about a year. Formerly this cheese was made exclusively from sheep's milk; now we use chiefly cows' milk, inoculating it with certain special ferments derived from sheep's milk. Today this kind of cheese can scarcely be distinguished from genuine cheese from sheep's milk. After the four months are up, we put the cheese on the upper floor in a storeroom where the temperature is maintained at 15 degrees.

Since there is no longer any call from America for cheese artificially colored, we do not use yellow coloring materials when we make samples, and the cheese is made without artificial materials.

Production of Casein

One of the operations for the extraction of milk sugar is the obtaining of casein by centrifugal action. We have the rooms for drying and grinding the casein, which is then sold to the establishments for pharmaceutical purposes, in appropriate vessels. The first preparation of the whey is made in these vessels by means

of six filters, after which the whey is clarified. Then it passes through the processes of concentration and condensation.

Manufacture of Butter

In this branch we have about 150 employees. Our butter has a natural color produced by churning the cream or milk fat, which is chemically equivalent to butter. We have two kinds of members — tenants and owners of dairy farms. Our association controls 4,000 cows. There are 160 members. Some are land owners and they have pledged themselves to supply for thirty years; while others are producers of milk under a lease, and are pledged to supply us during their leasehold. The shares sell for \$10 each, but the capital was repaid in 1908 after eight years of business and we now actually have a reserve fund superior to the society's capital. We have a veterinarian attached to the dairy whose business it is to inspect the stables, test the condition of the cows, and set aside cows which are found in an unhealthy condition. The visit of the veterinarian is obligatory in our concern, but it is not obligatory throughout Italy. The milk is analyzed every morning and the record is kept in the establishment.

Q. By what means do you preserve the samples for shipment to Milan? A. With bichromate of potash. The milk is cooled in the stables with special apparatus, so as to bring it to a temperature of 25 degrees centigrade. As soon as milked it is filtered and cooled.

Q. How do you pay for the milk — by the weight or by the fat content? A. It is paid for by weight, but only if it contains a certain percentage of fat.

Q. When members are paid on the basis of three per cent. of butter fat on the average there is made a distribution in proportion to the less quantity of fat, is there a premium for superior quality? A. There is not.

Q. What is the minimum fat content? A. Three per cent. per 220 pounds weight (quintal). We render a monthly account to the members.

Q. Do you sell your butter at wholesale? A. Yes; it is sold at wholesale in baskets, which are then sent back to the dairy.

Q. What is the price of butter? A. Second quality sells at

from 20 to 30 centimes (4 to 6 cents) less per kilo (about 2.2 pounds, according to quality. One quality sells for 3 lire (about 60 cents) (27 cents per pound), and another for about 3.20 or 3.30 lire (30 cents per pound) in bulk. At retail it would sell for 3.50 lire (70 cents) per 2.2 pounds (32 cents per pound).

Q. What is the relation of butter to buttermilk? A. A pound to every 100 pounds of buttermilk.

Q. What is the amount of fat in the buttermilk? A. One and twenty one-hundredths per cent.

Q. Are payments made at regular intervals? A. Every month accounts are paid at the rate of \$2 per quintal (220 pounds) (90 cents per 100 pounds; $2\frac{1}{3}$ cents per quart) of milk. At the end of the year the profit is determined, a certain percentage is allowed the individual, and the rest all goes to the coöperative dairy.

Q. Are there any special regulations as to the feeding of the cows? A. Certain feeding stuffs which change the constitution of the milk are prohibited.

Q. What is the amount of production per cow a year? A. Thirty quintals or 3,000 litres (a litre is a trifle more than a quart).

Q. Do you have regulations concerning the bulls which must be owned? A. There is an agricultural society which provides bulls. We do not have special regulations, but as a matter of fact, the Province has issued regulations concerning the breeding of bulls and their importation.

Q. Of what breed are they? A. The brown Swiss breed.

Q. What influence has this coöperative dairy had on the quantity of milk produced on each farm? A. It has materially increased the production of milk, because the management is good; making the business remunerative, and fair dividends are distributed at the end of each season, the balance being devoted to the reserve of the coöperative dairy.

Q. Does the itinerant professor carry on a propaganda for the dairy? A. He aids the dairy.

Q. Are the cows kept in stables? A. Before calving they are sent to the mountains, but during the milking period the cows all stay in stables.

Q. What percentage of the cows are tuberculous? A. That may be learned from the annual report.

Q. What results have this coöperative dairy achieved? A. Our organization, which is founded on the coöperative conception, has had very happy results, because the members have always been animated by the spirit of coöperation, which the itinerant professor has aided. In our laboratories the greatest care is taken regarding the sanitation of the laboratories themselves. We aim to produce choice products, especially on the hygienic side. Since we are exporters to your fertile country in which you have lands as fertile and productive as they are beautiful, we know that we must seek by every means to furnish you products that are wholesome.

Q. Can you state the average returns of the farmers? A. One is not able to give the average dividends returned to the farmers, because they vary from the minimum of 20 cents to a maximum of from \$20 to \$40. The coöperative society is formed above all to protect the small producer of milk, because, while it is easy for the large producers to make good contracts for themselves, for the sale of their milk, the small owners are in a measure imposed upon in that the price which they are paid is frequently lower by 10 or 15 per cent. than the market price. Therefore, the small farmers got together and formed themselves into coöperative societies, which we brought together in order to secure for them the advantages of a large industry.

Q. In a radius of three or four miles, how many farmers are there who are not members? A. Within a radius of three or four miles two-thirds of the farmers are members.

Q. What dividend has been distributed to the members? A. About 30 per cent., because the capital is small; the amount is nearly \$50,000. We have redeemed all the capital, machinery, etc., therefore we are in a position to pay the highest dividends, exactly 30 per cent., because the shares participate in the profits from the milk and because during the first years the shares did not receive dividends.

Q. Is there any difference in the distribution of the dividends among the members who hold 100 shares and those who hold only 10 shares? A. Every member is obliged to have a share for every

cow, although the members who do not have sufficient means are exempted. The shares which originally sold for 50 lire (\$10) now sell for 170 lire (\$34). The shares are per cow. The member who no longer is engaged in production is obliged to grant to the coöperative society the right of buying back the shares.

Q. Precise information is desired on this point. It being granted that two members have an equal number of productive cows, there is a great difference between them through the quality of their herds. Are the profits divided in the same proportion between them both? A. The shares exist solely in order to guarantee the profits to the society; but it is all based on the production of milk. The question concerning the productivity or, rather, concerning the herds, does not enter into it. In the division of profits, we base it on the quantity of milk furnished and do not take into account the number of cows. In the Province adjoining ours, there are other kinds of coöperative dairies, but they have not attained such splendid results as we have for technical and administrative reasons. Not one of these do at the utmost one-fourth of the business we do. The voting is by members, as in every coöperative society. Of the three branches of production, cheese-making is much more profitable, it being due in a measure to the prime quality of the raw materials. The milk sugar is little utilized. The profit is little more than the expense of production, so it is deemed best not to bother with it at all. In the small coöperative dairies in which the buttermilk or whey is returned to the producer for the feeding of live stock on the farm, a much greater profit can be secured by the utilization of buttermilk in this manner. On the other hand, the small coöperative societies do not yield so great a profit in the production of cheese.

Q. And now a question more or less amusing. I should like to know if they utilize in these coöperative societies the grunts of the hogs, because in Chicago there is an establishment which utilizes the phonograph for the reproduction of the shrieks of animals when they are in the market, and then they reproduce them in the hotels? A. We do not utilize the grunts of hogs, but rather all the refuse is sold for fertilizer and they sell sufficiently well. In the region around Cremona we are not able to buy concentrated feeding stuffs.

Q. Are the profits of this line of business devoted to progress of the coöperative dairy? A. Certainly. The land leases are valued by us at 120 lire (\$24) per hectare (\$11 per acre); today they are worth double that amount. Therefore, the value of the land has doubled, and that, too, in a period of from 12 to 13 years.

Q. What is the average selling price of cheese? A. It varies according to the quality from 1.50 to 2.50 lire (30 to 50 cents) ($13\frac{2}{3}$ to $22\frac{3}{4}$ cents per pound) per kilo. In 14 years the price of milk has increased from $21\frac{1}{3}$ cents per quart to 10 lire (\$2) per quintal (220 pounds) (86 quarts) until it is now worth 4 cents per quart. Moreover, the coöperative society, in order to hold its advantage in the Soresina country districts, has taken advantage also of the Cremona country districts, because one tends to modify the other.

Q. Have private producers attempted to form a kind of trust against the coöperative societies? A. During all these years they have tried legally to lower the price of milk. Our enemies are practically only those who use milk industrially, and they attempt to bring it about that we get as little milk as possible in order that they may pay less for it than they pay now.

Q. What means are used to keep the number of bacteria in the milk low? A. Our farmers sprinkle lime in the stables. If a member should bring spoiled milk to us we would fine him, and if this should not prove sufficient we would bring it up before the society. If abnormal milk is brought to the dairy when there is sickness among cows, and the matter is explained to us, we receive the milk and pay for it as in every other case. If, on the other hand, it happens through carelessness, then the guilty parties not only pay the fine, but also the damages. There is also the question regarding the cleanliness of the milk; as soon as the milk comes from the cow it must be passed through a strainer and cooled. The cleanliness of the milk is tested as soon as the can is opened. The process of refrigeration is conducted within receptacles at a temperature of 14 degrees. The coöperative society itself has furnished to individual producers the filtering and the refrigerating apparatus, having early seen the necessity of holding down the fermentations in the milk during the summer seasons.

Q. Does the coöperative society recommend certain feeding stuffs?

A. No; we exclude those feeding stuffs which do not further the production of milk.

Q. Do you sell directly to the United States?

A. No; up to the present we have sold through the instrumentality of merchants, but now we intend to try to make sales direct.

Q. At what age are calves sold?

A. They are about a month old when sold to the butcher. The choicer ones are kept for milk production, though one can truthfully say that one-half or two-fifths of the cows which supply the dairy are imported from Switzerland.

Q. What is the average price of imported cows?

A. The average price is high, being from \$140 to \$160. For some little time there will be no further need to import more of them.

Q. Do you have any kind of veterinary or medical inspection?

A. We have established a coöperative pharmacy for the veterinary service and for disinfecting purposes. The pharmacy also serves the families of members and throughout the surrounding country; it also serves as a practical headquarters for all kinds of remedies. In public sales we add a small percentage of profit, and the difference is applied for the benefit of the poor people in that part of the country.

Q. Do the coöperative societies interest themselves in social and moral projects for the improvement of social life and rural conditions in general?

A. The improvement of rural life is more an affair of the church and of the priesthood. In Italy organizations do not exist among the farmers which have their origin in the coöperative societies — those circles or associations for diversion and the development of social life, such as exist in the United States where the population is scattered. Here we do not feel the need of organizing ourselves for diversion and holidays; to us they are superfluous.

Q. Are the elementary schools adapted to the needs of the country — that is, do they give elementary instruction in agriculture?

A. They are beginning to do so in Italy, making a distinction

in the work carried on in the rural schools and the work followed or planned in city schools. Such a course has already been made concerning the study of nature along general lines. There is no technical instruction in agriculture. Practical work in the district schools does not exist. Whatever work is done of a practical nature is done in special schools. The youths can enter the special schools when they leave the elementary school.



"The Vintage" near Naples, Italy

ITALY

AGRICULTURAL CONDITIONS IN ITALY

Additional Investigation by C. C. Mitchell

The territory covered includes Florence, Rome, Lunghezza, San Giovanni in Carico, Fondi, Pontecorvo, Caserta, Naples, Portici, Genoa, Turin and the Italian Lakes, to Modane—France. Two weeks were spent in covering this itinerary from May 16–31, 1913, and most of the time was spent investigating the conditions on the farms and in the small towns. The people at the head of the Department of Emigration and the agricultural schools were also visited.

FARMING IN TUSCANY

The estates of Marchese Corsino, and Count Leonello De Nobili, which are mostly devoted to olives and vineyards and situated just outside of Florence, were visited. The land is so hilly and the fruit trees spaced so near together and there are so many vine-supporting trees, that little use can be made of agricultural machinery. Wheat, "fava," leguminous forage crops, are grown between the trees, and the cultivation carried on in a scientific manner. The soil is very hard to work in dry weather because it bakes and cracks open, forming solid hard blocks, or cakes of earth, when cultivated.

Most of the work is done by tenants, "mezzadria," on the crop sharing plan, the proprietor furnishing a house for each family of tenants and a certain amount of land surrounding it, and one-half of the livestock, tools, etc. The tenant family furnishes the other half and all the labor, and the proceeds are divided equally. The farm buildings are of stone masonry with tiled roofs, consisting of a house of two stories with two or three rooms on each floor, a stable adjoining, accommodating a pair of oxen and several cows, sheep, hogs, etc., and a courtyard enclosed by a wall, in which the forage is stacked and the branches which have been trimmed from the fruit trees are stored for firewood. Plows and other farm implements are also stored in the courtyard, everything being kept very neat and orderly.

The cattle are kept inside of the stable nearly all the time and fed during the greater part of the year on green forage and are said very rarely to suffer from tuberculosis or any other disease. Oxen are used for plowing with very primitive wooden plows, the "mezzadrini" maintaining that steel plows damage the roots of the trees, but the greater part of the work has to be done with stubbing hoes, or mattacks, by hand. It is noticeable that the wheat and forage crops grow almost as vigorously close up to the trunks of the trees as out in the open. The reason is given, that so much fertilizer is used, the branches of the trees cut back to such an extent, and the foliage kept short, that very little shade results, and only a small amount of nourishment is taken from the soil by the trees.

Some of the women in each family work in the fields with the men and the others remain indoors to do the housework and attend to the silk worms, etc. They seem to be contented and to live a comparatively comfortable existence.

The proprietors believe that the system of "mezzadria" is very satisfactory, but that it would be still better if they could manage the operation of their estates personally, and they do direct a certain proportion of the operations on those parts where they have not been able to get suitable tenants located. The price of farm labor amounts to from 40 to 60 cents a day throughout the year, but at harvest time they sometimes have to pay as much as 80 cents a day. Farm produce and foodstuffs are high in price and most of the operations in both buying and selling are done coöperatively through the agricultural syndicates.

The children of the "mezzadrini" are only given a very rudimentary training in the public schools, but the professors of the "Catedra Ambulante" give further instruction in agriculture on the farms, and they believe that too much education in school unfits the farm people for their work in life, and makes them discontented. They find that by educating them in agricultural matters on their own land that the best results are attained.

The system of "mezzadria," providing a separate dwelling and farm buildings for each family, upon the land operated by it, with half ownership in the equipment and production, gives a sense of ownership, which tends to bind the people who work the land to

it. There is little emigration for this reason, and consequently the cost of labor is lower than in most other parts of Italy.

FARMING NEAR ROME

A day was spent at the estate of Il Duca di Grazioli, ten miles east of Rome, near Lunghezza Station, in company of Professor Gaitano Brini, Foro Traiano No. 1, Roma. This estate consists of 2,470 acres of slightly undulating land, valued at \$200 an acre, which rents at \$6.40 per acre a year. The soil is a sort of disintegrated sandstone which is everywhere near the surface, and outcrops at intervals. Pasturage, hay fields, woods, and cultivated fields make up the greater part of the area. Grain, corn, cattle-feeding beets, sugar beets, etc., are cultivated in sufficient quantity to feed cattle, hogs, and sheep, which constitute the main industry of this section.

Community houses of masonry with tiled roofs are provided for the families who work the land. During the winter the wages of men are 50 cents per day and no women are employed in the fields, but during the three summer months the men receive 80 cents per day for performing all the heavier labor and the women 50 cents per day for doing such light work as hoeing, raking hay, and gathering beets.

During the winter time both the meadows and the pasture land are rented out at \$5 per acre for the six months from October 15 to March 15, to shepherds who come down from the mountains with their flocks to pasture them.

This property is rented and operated, on a large scale, by two brothers, (I Fratelli Mauri), who furnish all the equipment and pay for all the labor. The proprietor furnishes the land and the community houses and receives the fixed rental of \$6.40 an acre per year. The tenants borrow their capital from the local credit society, and have found operation under these conditions very profitable. They invited the Traveling Professor of Agriculture to come out and make a demonstration on a certain measured area in each of their hay fields to show the effect of using chemical fertilizers. The hay was being gathered at the date of our visit, and Professor Brini weighed samples from each of the plots which had been fertilized, and the adjoining area, without fertilization.

Hay standing in the field is valued at \$7 a ton. The cost of cutting, curing and storing it averages \$5 more, so that hay in the stack is worth \$12 a ton. As much as fifty tons of cattle-feeding beets and fifteen tons of sugar-beets are being produced per acre. Under the law for improving the lands of the "Campagna Romana" the proprietor has borrowed money at 2½ per cent. for drainage, irrigation and erecting community houses. The Department of Agriculture, through the "Cattedra Ambulante," demonstrates on experimental plots of the farms in the "Campagna Romana," even to the renter of these lands the advantage of using chemical fertilizers, leguminous crops and proper rotation and cultivation. The fertilizers consist of superphosphates and sulphate of ammonia, the cost of the former being \$11.20, f. o. b. Naples, or \$13.63 at the farm.

Experiment No. 1. A field of mixed hay was treated with 440 pounds of super-phosphate per acre, both with and without sulphate of ammonia (when used, 110 pounds). The result showed that an unfertilized field yielded 1.13 tons of dry hay. Where superphosphate alone was applied the yield was 1.51 tons, and where sulphate of ammonia was added also, the yield was 1.66 tons per acre.

Experiment No. 2. This field was planted with alfalfa and fertilized the same as field No. 1. Where no fertilizer was used, the production amounted to 1.13 tons of dry alfalfa, superphosphate alone 1.60 tons, and where superphosphate and sulphate of ammonia both were used 1.70 tons of alfalfa per acre resulted.

The sulphate of ammonia costs \$3.80 for 110 pounds and superphosphate, \$2.46 for 440 pounds; \$6.26 per acre treated with both. The superphosphate alone increases the production of mixed hay 33.6 per cent. and alfalfa 41.6 per cent. The cost of harvesting is little changed as the same ground has to be covered.

The price of hay being \$12 a ton, superphosphate alone increases the production of mixed hay by \$4 and that of alfalfa by \$5 per acre. The cost of the fertilizer applied to the land and the extra cost of harvesting the crop only amounts to about one-half of the increased yield on alfalfa, and more than one-third that on mixed hay, with the additional advantage of the fertilizer which holds over to the succeeding crop.

Agricultural machinery is used to put on the fertilizer, for harvesting the grain, hay, etc. The mowing machines and wheel-rakes are drawn by oxen or mules. Professor Brini thinks that if the proprietors would only supervise their own estates personally they would get better results than they do by renting. As it is the tenants find that it pays them to use fertilizers and machinery, even if they have to pay for it themselves.

EMIGRATION

Il Conde di Gallina, R. Commissioner General di Immigrazione, 149 Via Turin, Roma, spoke of the difficulty in preventing the Italian farmers from leaving the country, not only for America, but also for the Italian cities. He thought that something should be done to inform the prospective rural emigrants as to the relation between life in the city and that in the country, more particularly in America, so that the best type of emigrants might go directly to the rural districts. At the present time nearly all of the emigrants who go to America come from the rural districts of Italy to join friends who are engaged on construction work in the large eastern cities of North America, or to the country districts of South America.

Emigrants almost always go to work in a foreign country wherever their friends are employed, and the fact that the greater part of them land in the rural districts of South America where they get along very well indeed, makes it seem possible and even likely that if once the Italians in America could be induced to establish themselves upon the land and report to their relatives at home the advantages of life in the country, that a larger proportion of those leaving Italy each year, would make up their minds before starting that they were going to the country in America and would go there directly. The trouble is that they hear that a certain amount of money is expended on large public works where they know that they can find employment and prompt payment—they do not know that they can do this in the rural districts.

The Italian government cannot prevent a citizen from emigrating but it desires to coöperate in directing this emigration to rural districts, where they may become established and remain

in a prosperous condition. It does not desire to have its rural emigrants go to America and acquire the habits of city life and then come back to Italy and make the people at home dissatisfied or to induce them to leave the country too. Much annoyance is caused by returning emigrants who refuse to work any longer in the country but insist upon leading a life of indolence, setting a bad example to those at home. The majority of them are determined to remain in the cities such as Naples, where many of them become criminals.

The Count di Gallina furnished a letter of presentation to the head of the Department of Emigration in Naples, whom he said was better acquainted with the details than he himself. He thoroughly believes that America should coöperate with Italy in a campaign of education to inform the emigrants of the true condition to be found in the country districts, during their voyage, and that some attempt should be made to induce the Italians of rural origin, who are already overcrowding the congested districts of the cities in America, to move out into the farming districts where their labor is so much needed and where they may find an environment more healthful and better adapted to their original condition.

Sr. d'Ajello, Inspector of Immigration at Naples, believes that emigrants coming from the rural districts of Italy should be required by law to go directly to the farming sections of America and stay there, otherwise they should be compelled to return without landing to Italy. He thought it might be possible to examine all those Italians in the American cities, who may be out of employment, to determine whether or not they were accustomed to farming at home, and if so to compel them to either move out into the country or else have them deported, and sent back to Italy. He thought that such a law would not have to be continued in operation a great while before the emigrants would begin to think about going into the country districts of America before starting away from home. He believes that it would lead them to inform themselves as to American rural conditions and to start with their minds made up to go out on the farms, without stopping in the cities at all.

A few refusals to admit Italian farmers to the already over-

populated limits of American cities would very quickly make a big difference in present conditions of emigration. He stated that Naples is suffering from over-population, and that the natives of the city and those who had returned from America and are living in the city are determined to stay there, and cannot be induced to emigrate, but that their bad example results in an exodus from the country districts. The people of rural origin in Italy, after gaining a small fortune on public works in American cities, return to live and loaf in Naples. He believes that a law or regulation preventing this would not have to be enforced long before the emigrants would change their present trend toward the cities.

Professor Oreste Berdiga, Director of the School of Practical Agriculture at Portici, and author of the *Report on Country Life Conditions of Southern Italy, Volume IV Campania 1909*, made the following observations:

"1. The large land holders in Italy take little interest in the operation of their estates, leaving the direction to agents who treat the tenants unfairly, thus discouraging them from doing as well as they otherwise would in agriculture.

"2. The share system, which in Southern Italy allows the proprietor all the fruits from permanent plants like fruit trees and grape vines, and the tenant only half of the produce from the cultivated crops, is very unfair.

"3. The large estates should be divided up, and those who work the land should be given an opportunity to become absolute proprietors, and until such opportunity is given, that a more equitable system of 'mezzadria' should be established.

"4. Laborers receive at the rate of forty cents a day when employed throughout the year, and as much as \$1 a day is paid for extra labor at harvest time, in the country around Naples.

"5. Laborers in the city of Naples receive \$1 a day at the same time the 40 cents is being paid in the country, and that the cost of living has risen just as rapidly as wages, so that the people can live no better with the wages now paid than they could formerly.

"6. Returning emigrants have purchased land for sentimental reasons rather than for consideration of its productive capacity,

paying fabulous prices and then neglecting to cultivate the land themselves, but have followed the example of the large proprietors in exacting an unreasonable agreement from those who are willing to work.

"7. The large land owners have been influenced by these purchases at high prices, to hold their lands at equally unreasonable figures, thus making it very difficult for those who cultivate the soil to buy farms at reasonable prices and become proprietors.

"8. These are the reasons why the agricultural laborers are continuing to emigrate, thinking it a step upward in the social scale to leave the land, and become known by a number on a 'time check' of some subway contractor in New York.

"9. I believe, as the emigration authorities do, that those who are born and reared in the agricultural districts should be informed concerning conditions in the open country, and given an opportunity to acquire possession of farm lands in America, before they have been spoiled by employment on construction work. When a few have succeeded others will follow their example.

"10. With the high prices of food stuffs and improved methods of agriculture, assisted by rural credit and business methods of production and marketing, the opportunities are great for the ambitious cultivator of the soil who becomes a proprietor of the land he works, whether it be in Italy or America."

It was suggested that small land holdings provided with a dwelling and farm buildings and sold on easy terms to emigrants desiring to live in the country and having proceeded from the agricultural districts, would do much to start the movement. Wherever this has been tried out it has worked well and the sons of each agricultural family thus established become available to the surrounding farmers as an extra source of labor in time of harvest, etc.

PONTECORVO, VALLE DEL LIRI, CASERTA

The town of Pontecorvo is a center of rural organization, having a "Consortizo Agrario Coöperativa," "Banca Popolari Coöperativa," "Società Coöperativa," and Società d'Assicurazione Coöperativa." Coöperation is taught in the schools, and the officers of all the societies are extremely progressive and the progress is rapidly extending throughout the surrounding country.



FIG. 160.—FORESTED HILLS AND FERTILE PLAIN, ITALY.



FIG. 161.—THE APPIAN WAY, ROME.

The following leaders were interviewed: Deputy to Parliament, Count Anibale Lucernari; Sr. Mattia Sparangana, President of the Popular Bank; Sr. Pasquale Belli, Director of the "Consortio;" and Sr. Carlo Lungo, Cashier of the Credit Department of the "Consortio Agrario."

Cattle, grain, tobacco, wine, olives, hay, fruit and vegetables, are the staple crops. The country is undulating from level plains on the east to steep mountains on the west. A decided tendency to divide the large land holdings, and for small proprietors to live in separate houses on their own farms is noticeable. Those who live in the town have to pay an excessive rent and have to waste much time in going to and from the farms.

Prices for farm produce are high, corn \$1.30, wheat \$1.35 and oats 60 cents per bushel. Wool sells at 30 cents per pound; oxen weighing 1500 pounds each, sell at \$300 a pair; dressed beef at 16 cents per pound; olive oil at 30 to 34 cents per quart, and wine at 8 cents a quart.

The "Censorizio Agrario" handles agricultural machinery, chemical fertilizers, seeds, and spraying materials, and is carrying on an extensive campaign through the distribution of printed literature and demonstrations on individual farms by the Traveling Professor of Agriculture, with additional instruction in the public schools.

Superphosphates, potash, and nitrates, are the fertilizers most generally in use, and alfalfa, clover, "fava," etc., are extensively used to add nitrogen to the soil. Very careful cultivation and crop rotation have been introduced, and as a result the production is high.

The people seem to be prosperous, and constant and rapid progress is taking place, particularly, in the use of agricultural machinery and modern methods of production. A considerable portion of the farm produce is consumed locally, tending to keep up prices, thus reducing the necessity for coöperative marketing which has not as yet been undertaken. However, the leaders in the coöperative movement can already see that their attention must next be directed to the problem of marketing.

FONDI, PICO, SAN GIOVANNI IN CARICO, CASERTA

A trip was made across the mountains, in company with Sr. Don Luciano Federici, a buyer of cattle and farm produce, of

San Giovanni in Carico, Caserta, to the town of Fondi near the coast. This district is mountainous but cultivated up to the timber line; the vineyards, olive trees, hardy fruits, wheat, oats, and alfalfa, being raised in the higher altitudes, and oranges, lemons, etc., at the foot of the mountains.

Oranges sell at \$1 to \$8 per thousand and lemons from \$2 to \$10 per thousand, according to the season of the year and the size of the fruit. The lemons are large and of good quality and the oranges also. Most of the lands are held by small proprietors who operate them directly, but there are some large holdings, and those who work the land at Fondi nearly all live in the city, or in scattering houses in the suburbs.

It happened by accident that several rural families in this district were taken to the rural districts of New York and New England upon arriving in America, and became established in the country at the very start of immigration. At the same time some of these farmers went to Argentina where they continued in agriculture, and as a result a very large proportion of all who have emigrated have gone directly to the country where their friends are already established and doing well. Many of these emigrants failing to find employment during the cold, winter months in the United States, return and spend the winter in Italy, and come back again in the spring.

The living conditions are good among these people both in Italy and America, affording an example of what may result from having emigration directed away from large cities.

Each town has its own market place where there is much traffic carried on between the farmers themselves, in hogs and cattle, as well as grain, hay, fruits, etc., which are sold to the town people. Wine, olive oil, citrus fruits, wool, etc., are shipped to the outside markets and there is room for improvement through coöperative marketing associations which are soon to be established. Few people are leaving this country at present through necessity, emigration being more frequent from a desire for change and a chance to see a new country about which so much has been told by returning friends. These reports being from the country in America, those who emigrate naturally go where their friends are.

With the acquisition of land by those who work it, and the further introduction of agricultural machinery throughout the broad fertile plains of Caserta and Naples, it would seem that this part of Italy should before long, approximate to the already prosperous condition reached by the northern provinces of Italy.

Much manufacturing is already being done throughout the towns of this section, thus adding to the stability of employment and giving a local market to the produce of the surrounding farms.

PIEDMONT, TURIN

Director General Rag. Italo, Pennaroli of the Consorzio Agrario Coöperativa de Torino, Via Tiziano No. 8, states that most of the land in this section is held by farmers doing their own work, the size of the farms ranging from $21\frac{1}{2}$ to 25 acres in the mountains, to 75 up to 500 acres on the plains. There are, however, some extensive holdings, including those of the ancient order of "Maurizzio," originated at the time of the crusades, and of which the King is the President. This property is farmed by tenants, each cultivating areas similar to those held directly by the other farmers of the same locality.

Many farmers keep no cattle at all except those necessary for cultivating the land, but board the flocks and herds for the shepherds during the winter time. The farmers devote all their attention to raising hay and grain for the shepherds, and cultivating vineyards and orchards. Some of the farmers have dairies from which milk is supplied to Turin and even sent to Genoa, and they keep their cows in the stable nearly all the time. The shepherds remain in the mountains with their flocks and herds throughout the summer season, only coming down to the farms for the winter.

There has been a coöperative milk supply in Turin resulting in an extremely low price to the consumers, but at the present time the supply is individual. There is an understanding among the dairymen immediately surrounding the city by which they agree to divide up the city into sections, each group of farmers delivering directly to a distributing station in one section of the city. Motor trucks make the rounds of each dairyman's district, collecting the milk and carrying it in to the corresponding distributing station where it is bottled and delivered to the con-

sumers by women and boys at a price of four cents per quart. This is the lowest price for milk that has been observed anywhere in Europe, and it is due largely to the excellent organization in the distribution system. It is partly due also to the adaptability of the territory surrounding Turin for dairying, and also to the moderate size of the city and the simplicity of its layout. The cost of marketing is only 25 per cent. of four cents, or one cent per quart.

Thirty thousand liters of milk are distributed in this way daily and it is brought to the city in cans holding from 25 to 75 pounds, corresponding to cans holding 10 to 30 quarts, the smaller cans being delivered directly and the milk from the larger ones bottled. There are 400,000 inhabitants in Turin.

Farm labor is from 60 cents to \$1 a day throughout the working season, and the farmers are unusually progressive and prosperous. The "Consorzio" buys coöperatively great quantities of fertilizer, seed, and agricultural machinery, but its credit department reports that there is little demand for short time loans. This is due to the fact that the farms are already pretty thoroughly developed and the production almost up to the maximum, and that the dairying industry and the boarding of the shepherds' cattle do not require much capital, but result in an income which is paid regularly.

The great level plains are largely devoted to forage crops and grain, having the surface corrugated for drainage and irrigation purposes, making the use of mowing machines rather difficult, and for that reason they are not very much in use. Other agricultural machinery, such as grain drills, threshing machines, etc., are very popular.

A new "Consorzio Agrario" is just being established for the purpose of coöperative marketing. The President, Conte di Rebandingo, Via San Delmazzo, No. 16, invited the writer to attend a session of the society in which the proposed by-laws were being discussed. The members were extremely well informed and were planning the rules for their society very carefully. They appreciate that the marketing of their produce is the subject of most vital importance to them, for they have already developed their production and are not immediately in need of more capital, except such amounts as they may have to

use for the collecting stations and carrying on of their marketing plan. Much animated debate arose over the location for the collecting stations, and it was decided to allow some extra compensation to the members who would have to travel the greatest distance to deliver their produce.

TRIP TO THE ITALIAN LAKES

The melting snow from the Alps, keeps the Plains of Piemonte and Lombardia well watered and large tracts are devoted to rice growing, the water being led down over the successive fields through sluices, there being a slight difference in level just sufficient for this system of irrigation. Very few cattle were seen in the fields but great quantities of hay and forage crops were being harvested and the farm buildings were very neat in appearance. The higher levels were devoted to grain growing and the steeper slopes to vineyards.

The price of wheat was \$1.54 to \$1.62; oats, 57 to 70 cents per bushel; hay, \$18 per ton; straw, \$6 per ton; dressed beef, 15 cents for fore-quarters and 14 cents for hind-quarters; dressed veal, 17 cents, and dressed lamb, 16 cents per pound. Spring chickens, 64 cents a pair; hens, 94 cents a pair; eggs, 18 cents a dozen; butter, 25 to 30 cents a pound, and wine, 4½ to 9 cents a quart. Refined sugar, 14 cents a pound; superphosphates, \$12 to \$15 per ton; bone meal, \$17.50 to \$18.50 per ton; nitrate of soda, \$56.50 per ton; chlorate of potash, \$76 per ton, and sulphate of potash, \$50 per ton. Copper sulphate for spraying, \$120 per ton. All these prices, May 30, 1913.

The high productivity of this territory seems due to the progressive methods of fertilization, crop rotation, and cultivation, together with the well controlled distribution of moisture and the universal introduction of leguminous crops, as well as to the industry and business ability of the farmers.

As the border of France was approached the country appeared very much broken up with rocks and steep slopes, but every bit of soil was being cultivated in the most careful manner, and great care was being taken to maintain the forests wherever the land was too steep and difficult to cultivate. Every small terrace in the upper valleys was provided with irrigation from the streams wherever possible.

GERMANY

AGRICULTURAL CONDITIONS AND COÖPERATION IN GERMANY

Germany has today 24,724 coöperative associations. They include 15,990 credit associations, 2,346 purchasing associations, 3,415 dairy associations, and 2,973 various other societies.

The reader will no doubt be surprised to know that German agriculture has had many more difficulties to contend with than agriculture in the United States or in most countries of the world. Germany does not possess the first essential requirement for a good crop, namely, a good soil. The soils are on the average very poor. Even in old Roman times German soil was known to be very unproductive. But for our increasingly heavy crops, we have in the first place to thank German agricultural science and the small farmer. German tillage holds the first place in the world. In certain districts horse and cattle breeding, grape culture and general fruit culture will also be found.

The statistics of Germany's surface area are as follows: 24,432,354 hectares (61,080,885 acres) of arable land; 487,716 hectares (1,219,290 acres) of garden land; 5,951,630 hectares (14,879,075 acres) of meadow; 853,806 hectares (2,134,515 acres) of pasture; 2,532,649 hectares (6,331,622 acres) of swamp, peat, moor and other poor lands; 115,368 hectares (288,420 acres) of vineyards; 7,679,754 hectares (19,199,385 acres) of forest; and 1,057,202 hectares (2,643,005 acres) of underhouses, stables, roads and waters.

Grain culture predominates in German agriculture. This is best shown by comparison: Grain 14,754,077 hectares (36,885,192½ acres); potatoes 3,173,830 hectares (7,934,575 acres); forage plants 2,584,682 hectares (6,460,705 acres); sugar beets 513,822 hectares (1,284,555 acres); vegetables in the fields, 265,536 hectares (663,890 acres); other crops 1,062,663 hectares (2,625,840 acres).

The agricultural population in Germany is principally small holders. We divide the rural holdings in Germany into small, medium and large sizes. We have also very small holdings, so small that a man and his family have to do some outside work. The following is a brief sketch of the sizes of the different German farms from the smallest to the largest.

Smallest land holdings under 20 ar (100 ar equals 1 hectare or $2\frac{1}{2}$ acres) contain 232,451 hectares (581,127 $\frac{1}{2}$ acres) and number 1,262,230 holdings; small land holdings and rural holdings from 20 ar to 2 hectares in size contain 2,259,550 hectares (6,398,877 $\frac{1}{2}$ acres) or 2,116,279 holdings; little rural holdings, from 2 to 5 hectares, contain 4,306,420 hectares (10,766,050 acres) or 1,006,277 holdings. Medium-size rural holdings from 5 to 20 hectares, contain 13,768,520 hectares (34,421,305 acres), or 1,065,539 holdings. Large holdings from 20 to 100 hectares in size contain 12,623,010 hectares (31,507,525 acres), or 262,191 holdings. Large estates from 100 to 1,000 hectares in size contain 9,222,873 hectares (23,057,182 acres), or 23,197 estates. Feudal estates of more than 1,000 hectares in size contain 693,657 hectares (1,734,142 $\frac{1}{2}$ acres), or 369 estates.

The great development of German agriculture is to be traced to the use of manures and fertilizers. Let us, therefore, view the conditions of German agriculture at the beginning of the nineteenth century. In order to do this it is necessary to go back to the time before 1850. Previous to that period reforms in German agriculture had been begun. Their author was Albrecht Thaer, a physician of Celle, Hanover. Although he had never been in England himself, he carefully studied English agriculture, which was at that time in a most flourishing condition. He investigated and tested its principles and practices and published the results of his studies and experiments. When he died in 1828 he left behind him most valuable achievements. He was the first to understand clearly the various hindrances in the way of rational agriculture in Germany. The practice of German agriculture he found firmly rooted in the so-called "dreifelderwirtschaft," the triennial rotation of crops, deriving its stability from custom and land legislation which determined the division and use of land, com-

pulsory labor, coöperative agriculture, right of pasture, etc. The triennial rotation of crops is based on the cultivation of grain. The land was divided into three parts, one of which in turn lay fallow, while the other two were sown with winter and summer grains. This kind of agriculture is necessarily extensive and applicable only where the demand for agricultural products is light and the population sparse. As soon as the fallow gives place to forage, herb, or root crops, agriculture becomes more rational. This improved rotation naturally leads to a change of crops. Winter and summer forage crops, clover and other products are assigned in fixed rotation to the several parts into which the land has been divided. Although first applied in England, it was Thaeer's idea to systematize rotation, and to remove the obstacles to improvement of the soil. We find that even in the fifties these obstacles, which lay chiefly in the unchanged partition of fields, gradually disappeared. In rotation of crops the most intensive form of agriculture has been discovered and applied.

It was Liebig who later made us realize that the principles of plant growth and the rational feeding of animals were strictly subjects of natural science. The knowledge of plant nutrition is, no doubt, one of the most important achievements of agriculture. This knowledge made modern agriculture possible. Liebig will ever be a source of pride to the Germans. Liebig is also the father of agricultural chemistry. The first of his numerous works on agricultural chemistry, entitled "Chemistry in its Application to Agriculture and Physiology," appeared in 1840.

Not to dilate here upon all the writings of Liebig or upon the many controversies to which his ideas gave occasion, I wish to show you only how he has really contributed to the science of agriculture. He points out that plants require organic substances contained in the air (chiefly nitrogen) and mineral substances contained in the soil, such as phosphoric and silicic acids, lime and potash. Because every plant through its growing process absorbs the mineral substances of the soil, the soil is in danger of losing its fertility. These mineral ingredients must, therefore, be restored to the soil by means of bones, excrement, and the ashes of plants, which Liebig found to be best adapted for the purpose because they contain those ingredients in considerable quantities. This discovery and its consistent defense against all opposition is

the main achievement of Liebig. As for the rest, he is not without his mistakes. His chief error was that he considered the artificial supplying of nitrogen superfluous, and, therefore, he attached no importance to stable manure. In this matter he encountered serious and just opposition, and in the course of time it became apparent that the artificial supply of nitrogen for the nourishment of plants is not less necessary than the artificial supply of mineral substances. This law found its foremost champions in Friedrich Gottlob Schulze and Julius Adolph Stoeckhardt. During these scientific investigations and the discussions occasioned thereby, agricultural chemistry was necessarily pressed to the front. Liebig, who was not engaged in actual farming, thought it sufficient for all purposes to supply artificial nourishment. For that reason he was opposed to rotation and expected the labors of the farmer to be vastly simplified by confining himself to one kind of cultivation. Change of fertilizer would have the same effect as rotation, he thought. Liebig also had little regard for fallowing, and this is the second point in which he was one sided; he overlooked the the practical advantages of rotation and the advantages of fallowing escaped him altogether.

The following period from 1870 to 1890, was devoted chiefly to the physical conditions of plant culture. The importance of humus in agriculture was beginning to be justly appreciated. Besides affording nutrition to plants by means of its decomposition, humus regulates the temperature, humidity and tenacity of the soil by warming, loosening and drying cold, tenacious soil; and on the other hand, by cooling, moistening, and stiffening sandy soil. The farmers were again learning to value stable manure. Because of its humus forming properties, stable manure exercises a most beneficial influence on the character of the soil.

The usefulness of fallowing was realized anew, because it promotes decomposition and thereby improves the physical condition of the soil. The supreme importance of rotation for increasing the productiveness of the soil was established through the investigations of Hellriegel (1831-1895), who succeeded in proving that leguminous plants assimilate the free nitrogen of the air by means of small tubercles on their roots due to the presence of bacteria. This discovery lent scientific support to the well known fact that leguminous plants are valuable for enriching the soil.

The facts established by these investigations and inquiries are that rational care and nourishment of the soil are possible; that the value of artificial fertilizers must not be over estimated; that natural (stable) manure is the best, while artificial fertilizer is only a valuable help; that varied crops with fixed rotation, sufficient live stock, careful attention to the soil and the best selection of seed are the most productive and economical methods. These are the farming principles which form the solid foundation of the welfare and remarkable prosperity of the German people.

The overseas competition also helped toward promoting the increase of crops. Large areas which were thought infertile and sterile were made productive. Two men, Schultz-Lupitz and Rimpau-Cunrau, rendered themselves famous by creating new sources of national wealth. Quoting the words of King Frederick the Great, "the work of those men, thanks to whom three or four ears grow where formerly one ear stood, is greater than all the work of kings, generals and poets." Through Schultz-Lupitz large crops have been won from the sandy lowlands of North Germany, through green manuring in connection with potash and the rotation of crops. Rimpau-Cunrau showed how to cultivate grain successfully on the German low-lying peat lands. This combination of practice and science brought Germany her wonderful success, so that today, with her 66,000,000 inhabitants and her ever increasing output of grain from poor lands, she is becoming more and more independent of foreign countries. Today Germany imports only 5 per cent. of her food-stuffs, and her agricultural authorities are firmly convinced that in the near future that country will be entirely independent of foreign supplies. This wonderful production is obtained from a country which is smaller than the State of Texas.

FARM LABOR

Farm laborers are paid from \$1 to \$1.50 by the day for men and somewhat less for women, the hours being from 6 in the morning to 6 in the evening with two hours off at noon. It is difficult to get enough laborers in this way without board, so farm labor is imported.

Farm laborers receive \$1 a day and are given a house to live in and such provisions as milk, peas, beans and potatoes which they prepare themselves — that is foreign laborers.

SIZE AND VALUE OF FARMS

The average size holdings are from 10 to 15 acres and for ordinary cultivation the value ranges from \$80 to \$500 an acre, and forest lands are worth \$80 an acre on an average.

RENTAL AND TAXES

Ordinary farm lands suitable for grain cultivation rent for rates ranging from \$4 to \$15 per acre, and the taxes amount to from \$1 to \$1.50 per acre.

FOREST LANDS

Although it takes from eighty to one hundred years for conifers to mature, the income from the state forests valued at \$80 per acre ranges from \$3 to \$5 per annum as compared with \$4 to \$15 per annum for land under cultivation.

WHEAT YIELD

The greatest proportion of German farms are engaged in grain raising and the yield per acre for wheat sometimes reaches 64 bushels per acre and 40 bushels is not unusual.

FRANCE

FARMING IN SOUTHERN FRANCE

Additional Investigation by C. C. Mitchell

Entering France on June 1, by way of the Maritime Alps, a week was spent on the way to Spain, passing through the following: Modane, Aix-les-Bains, Bourg, Lyon, Valence-Loriol, Avignon-Carpentras, Nimes, Montpellier, Port Bou to Spain. After passing two weeks in Spain another week was spent in Southern France, entering by way of the Pyrenees at the pass d'Aspe, and continuing through Oloron, Pau, Lourdes, Toulouse, Limoges, Chateauroux, Bourges, to Paris.

An attempt was made to get the opinion of the farmers themselves and the coöperative society, as to the results that are being accomplished through coöperation and the satisfaction that is being given by the several available systems for agricultural credit.

MODANE, AIX-LES-BAINS, BOURG

The most striking thing in the river valley from Modane toward Aix-les-Bains, is the extent to which the water power is being utilized for the manufacture of electricity and calcium-carbide. The melting snows from the Alps keep the rivers flowing full far into the summer and the utilization of this water power is adding greatly to the wealth of the country, and making it possible for many people to find employment in this part of the Republic, who would otherwise have to seek it in the cities.

Vineyards are cultivated on the steep mountainsides and hills and on the higher land, and forage crops and grain on the plains, much of the land being held in very large estates and not intensively cultivated. From Bourges to Lyon the country is mostly open and devoted to grain, hay and cattle raising, and from Lyon southward throughout the Rhene Valley there is much intensive cultivation in small fruits and in orchards, as well as vineyards, and grain and forage crops.

The farmers throughout this whole section seem remarkably prosperous and most of them live on the farms which they own



Grazing Country, France

and cultivate, their houses being situated separately throughout the Rhone Valley. There are, however, a large number of agricultural workers who live in the villages and are employed on the larger estates.

Wages are moderate in price and farm produce is high. Fertilizers are being used extensively and farm machinery is coming rapidly into general use. Coöperative purchasing has been in successful operation through the "Syndicats" for some time but coöperative selling and distribution are just being started. The credit facilities for both long and short time loans are said to be most satisfactorily supplied through the "Credit Agricole." Many large proprietors have borrowed from the "Credit Foncier" on mortgage security, but it was said that the formalities and requirements were prohibitive to the small farmer. It was stated that about \$2,500,000 had been loaned at 2 per cent. plus amortization, to the small farmers of France, during the last year, by the "Credit Agricole."

The best results in agriculture are said to be attained by the small farmers holding from 5 to 60 acres and averaging 25 to 30 acres. They have separate houses and buildings and live on their own farms and do most of the work themselves with the help of their own families. The highest income comes from raising strawberries and early vegetables (primeurs), which are sent to the markets in Paris and Berlin where they command high prices, because they arrive earliest in the season.

Hay and cattle raising in the east; wheat, rye, oats and barley, with hay, in the north; hay, grain, peaches, plums and small fruits and vegetables in the central part; and vineyards, oil-producing crops, grain and pasturage in the south, comprise the staple production of the Rhone Valley.

Farm laborers receive from 80 cents to \$1.40 per day of twelve to fourteen hours, and women 50 cents to 75 cents at harvest time, when they do the lighter work, such as raking and shocking up the hay. Hay sells at from \$12 to \$15 per ton around Lyon, and the President of the "Credit Agricole" stated that the greatest demand is for short time loans extended to two or three years for the purpose of buying and maturing cattle, and for the purchase of the more expensive agricultural machinery, the saving by which can not pay for itself in one year.

Bourg and Aix-les-Bains, where the farmers are mostly operating on a large scale, or where the land is being operated by tenants, farmers do not make much demand on the "Credit Agricole," the large proprietors having already borrowed from the "Credit Foncier." What little demand there is from this section is for the long term loans furnished by the "Credit Agricole" which are being called for by farmers' sons who desire to become proprietors of small farms or to increase their production as renters by the purchase of cattle and machinery.

VALENCE — LORIOI (DROME)

"Brancas," a 150 acre fruit farm at Lorient (Drome), situated on the east bank of the Rhone, and owned by Tezier Freres of Valence, is devoted partly to vineyards, peach and plum orchards, and also to forage crops and cattle raising. This farm is operated by M. Paul Rey, as superintendent, with fifteen workmen, four mules, three horses and modern spraying and cultivating machinery. The wages are 60 cents per ten-hour day throughout the year.

The soil is alluvial, underlaid by gravel, and nearly level; the superintendent's house and farm buildings are large and well arranged, all being built of masonry. The cattle are kept in the stable most of the time and fed throughout the summer on green forage. The land is valued at \$250 per acre. Hay sells for \$15 per ton and three-year old steers, weighing 1,100 pounds at 8 cents, live weight (660 pounds dressed at 14 cents). Calves are sold, if possible, at the age of one week at \$8, and if kept one year they weigh 400 pounds alive. Farm horses are valued at \$170 each, and alfalfa at \$12.50 per ton in the field, the first cut yielding 2¼ tons per acre.

The peach and plum trees were very carefully trimmed, the tops being cut out to admit the sunlight so as to mature the fruit uniformly, and the bearing age is said to extend from three to twenty-five years; however, there are some seasons when very little fruit is yielded, either through late frosts or an attack of some disease. The grape vines are cultivated in rows between the fruit trees and both the vines and the trees are very carefully sprayed and cultivated.

The superintendent stated that the elementary schools give some instruction in agriculture and that those pupils who show a special interest or aptitude are given further instruction in the regular schools of agriculture.

There is not much borrowing in this section but the service being rendered by the "Credit Agricole" is the first that the farmers have felt was adequate to meet their requirements. He said the sons of the small farmers were available at harvest time as day laborers for the larger land holders, and that there was little trouble through lack of sufficient farm hands.

AVIGNON — CARPENTRAS

The mayor of Avignon, former President of the Agricultural Society, and owner and operator of a large farm near the city, spoke very highly of the service being rendered by the "Credit Agricole," and the officers of the local "Syndicat." M. Maurice Verger, Ing. Agricole, Directeur des Pepiniers d'Emile Fenouil, Carpentras (Vocluse), quite agreed with him.

This is one of the most important sections for the production of "primeurs" which are brought in daily to the town of Carpentras and sold at auction, very early in the morning each day during the productive season. This produce is purchased by intermediaries (expediteurs), who make up car loads and ship it to the northern markets. The producers who have been buying all their requirements through the "Syndicats" have until recently been receiving such satisfactory prices that they have not strongly felt the need of coöperative selling. Just at this time they are awakening to the very large profits that are being made by the "expediteurs" and are considering the formation of a coöperative selling society.

During the month of June, 1913, twenty-five carloads of strawberries were being shipped per day from Carpentras, and other early produce in proportion. This district has been transformed by irrigation and scientific agricultural methods from an almost desert gravel area to one of the most productive agricultural sections of France. Every Wednesday morning they have a great general market sale of cattle and all kinds of produce,

beginning at 1 a. m., but the fruits are brought in every morning at that hour, and all shipped away on the train before daylight.

American grape vines are being almost universally introduced for the root-stock throughout the vineyards, because they are able to resist the phyloxera, and the native vines are grafted on them.

The boys' secondary public school at Avignon makes no attempt to teach agricultural subjects, leaving that for the special agricultural schools.

NIMES-MONTPELLIER

Grape growing is the principal industry in this section, although between the vineyards there are many farms devoted to cattle raising with forage crops and grain. Agricultural machinery is sold at Nimes through two separate private dealers at very reasonable prices, American mowing machines selling at \$50 each.

The "Credit Foncier" was well spoken of for long-time loans, although it was said that the small farmers were getting very much better service from the "Credit Agricole" on both long and short-time loans, and that the "Caisse Regionale" at Montpellier, has already laid aside as reserve one-sixth of the amount advanced by the Government or \$150,000.

THE RETURN FROM SPAIN

Passing over the Pyrenees, the tops of which were still covered with snow, the abrupt change from the dry, arid slopes of the Spanish side, to the profuse verdure of the forests and the grassy hillsides which extend up to the snow limit on the French side, is striking indeed. This condition is apparently due in part to the conservation of the forests on the French side of the mountains.

Great flocks of sheep and goats were seen on every side, with hay fields and grain extending to the hilltops, and horizontal hedge-rows on the steep slopes to prevent erosion — in fact very little effect of erosion was to be seen anywhere. The public roads are magnificent and a railroad is almost completed joining Upper Aragon with the *Department of Basse Pyrenees.

M. Pierre Arrouge', Marchand de Bois, Arudy (Basse Pyrenees), who owns a farm and also travels all over the Pyrenees

* Department is a political subdivision corresponding to a county.

district buying timber which he has cut and sold to lumber dealers, gave the following information:

"The greater part of the farm produce in this section is consumed locally, or at such nearby cities as Oloron, Pau, Lourdes, Tarbes, etc. Land values are moderate, pastures and woodland in the mountain valleys being valued at \$100 per acre, and cultivated land at \$200 per acre. About Oloron the values of farm produce are as follows: hay, \$11 a ton in the field; wheat, \$1.50 per bushel; cavalry horses which are sold to the Government at \$300 each; mules sold for export into Spain, \$120 each; work horses, \$150 each; calves six months old, weighing 250 to 300 pounds, 11 cents a pound, live weight, averaging \$30 each. Beef cattle, weighing 1500 pounds alive, at 9 cents a pound, are worth \$125 each; sheep weigh 170 pounds live weight, at 9½ cents per pound, and dress to 90 pounds at 14 cents, and the skin brings \$3.40 more, so they are worth \$16 each.

"I consider that the price of land has been somewhat increased by the foreigners who come into the Pyrenees district and buy up places and build villas where they spend the winters, and that the lands throughout the whole region are selling at higher prices than they did formerly, because of the very favorable long-time loans granted by the "Credit Agricole," which enable young men to become proprietors of small farms. The larger holdings are being divided up and sold in this way and the average size of the farms throughout this section is about 30 acres."

LOURDES

M. Francois Dubosc, Adjuant au Marie, Camperzan (near Launemezan Station), who is the vice president of the "Caisse Locale du Credit Agricole," said there are 180 Caisse Locale in his Department of Haute Pyrenees. He was enthusiastic about the system, saying that borrowers might renew their short time loans every three months according to their local provisions. They have to return one-eighth of the amount of the loan or of the amount outstanding, together with interest at the end of each three-month period, in order to have the loan renewed.

This process may be continued for two years with the interest ranging from 4 to 5 per cent. He reported much demand for long-time loans at 2 per cent. plus amortization, which run from 10 to 15 years. He said these are being taken advantage of by young men returning from their service as soldiers and by farm laborers who buy small farms and operate them. Horses, mules, cattle, grain and hay are the principal products of this section, and the prices paid by the Government for cavalry horses and by the Spanish for mules makes the raising of these animals very profitable.

TOULOUSE

This is an important agricultural center, having 150,000 inhabitants, and a number of agricultural societies, and is the gathering place for fairs, stock shows, racing events, etc.

The "Caisse Regionale" receives deposits on which it pays $2\frac{1}{2}$ per cent., and has supervision over a very large and thriving lot of "Caisse Locales," some of which are on the limited liability and others on the unlimited liability principle. They all grant short-time loans at 4 to 5 per cent., usually with one or two guarantors, and long-time loans at 2 per cent. plus amortization, mostly maturing in fifteen years, the annuity amounting to $7.78\frac{1}{4}$ per cent. Both classes of loans are in demand and only about one-half of them can be granted for the following reasons: Unsatisfactory personal character of the borrower; questionable purpose of the use of the loan; lack of satisfactory bondsmen; questionable title to the land, etc.

The coöperative selling societies, such as the Violet Growers Association, the Coöperative Sales Stable for Horses, etc., borrow on long-term and are getting along well. The violet raisers ship in carload lots during their season and have become very successful through their coöperative association.

The officers of the "Caisse Regionale" and the "Syndicat" are enthusiastic about the service rendered by the "Credit Agricole."

CREDIT FONCIER

The system of "sequestration" adapted by the "Credit Foncier" whenever the interest is not paid up promptly, was described



FIG. 162.—HORSE MARKET, EASTERN FRANCE.



FIG. 163.—SELLING POULTRY AT BOULOGNE, FRANCE.

by a former superintendent for this institution. M. Simon Rouanet, Ancienne Regisseur du Credit Foncier, at present manager of a 900 acre estate of Chateau du Petit Mandriac, Narbonne (ande), on which 1,200,000 litres of wine will be produced this season (1913), besides large quantities of grain — 42 rue des Filatiers, Toulouse, said that about 10 per cent. of the loans made by the "Credit Foncier" in the Department of Tarne et Carone had to be "sequestered."

It was the policy of the bank to take over the management of such properties and to place a superintendent in charge until such time as a sale could be made to advantage, using the proceeds from operations to pay the interest and expenses. As the mortgage was usually on large land holdings without restriction as to the use of the loans, some spendthrift proprietors had neglected their land and failed to pay the interest, while other proprietors like vineyardists had been unable to keep up the payments because of the destruction of their vines by plant pests.

The initial cost and formality of making loans from the "Credit Foncier" has prevented small land holders from taking advantage of the service which it has to offer. It costs \$250 for the fees and other expenses necessary to take out a loan amounting to \$5,000; whereas, for the "Credit Agricole" \$5,000 collective loan, it costs \$140.40.

In attempting to sell a property under foreclosure, especially in case of a vineyard which has suffered deterioration, if an immediate sale were attempted the price might not equal the amount outstanding on the loan, so the policy is to start to operate the farm under a superintendent and to lay it off in small parcels, which are advertised for sale. In this way those desiring to acquire small farms may come and look over the property and choose the amount of land they desire and such parcels may be sold to much greater advantage.

One of the properties coming under the direction of Superintendent Rouanet, was "La Domaine de Bellaire," Commune de Masgrinie (Tarne et Garone). This farm consisting of 575 acres was estimated to be worth \$300 an acre and a mortgage equal to \$125 per acre and amounting to \$72,000 was taken by the "Credit Foncier."

When the owner of the land failed to keep up his interest payments, M. Rouanet was placed in charge of the operation of the farm and he employed 20 men at 70 cents a day, 15 women at 40 cents a day, and 10 horses and 5 ox teams, with a full equipment of machinery. Cattle, horses, and mules were raised and all necessary crops grown to feed them.

The annual income amounted to \$12,000, the operating expenses \$5,500, including the labor, and the interest at 5 per cent. came to \$3,600. An additional expense for superintendence and incidentals of \$900, brought the total up to \$10,000 per year. The taxes were estimated at about \$1,000, leaving a net profit of \$1,000. This was the average for about three years of operation, during which favorable seasons were enjoyed, but if any unforeseen mishap had occurred, or a disease developed among the animals, a loss might have resulted, instead of a gain from the operation.

The 575 acres was divided into 33 separate parcels, averaging $17\frac{1}{2}$ acres each, but actually ranging all the way from 1 to 25 acres each. These parcels were sold to farmers' sons and agricultural laborers, etc., at an average of \$150 an acre, bringing the total amount realized from the sale up to \$86,000. Since the mortgage amounted to \$72,000, there was \$14,000 more than enough to cover it.

Although the "Credit Foncier" lost nothing in this case, it might have lost something if it had attempted immediate foreclosure. It is evident that the greatest care is required in estimating the safe limit of mortgage loans on highly developed, intensively cultivated farm land, such as vineyards, orchards, etc. Land not yet planted may be worth \$140 to \$200 an acre, and when covered with vineyards or orchards the same land is frequently worth as much as \$1,600.

Before insurance against destruction of vineyards and orchards was taken out, the "Credit Foncier" took a considerable chance whenever it loaned more than \$200 per acre on high priced vineyard land, and at the same time the proprietors were hampered by the small amounts they could borrow on such highly developed land. Many of the early loans made by the "Credit Foncier"

were on too high a valuation and wherever foreclosures have become necessary it has been difficult for the bank to escape without loss.

The vineyardists are taking the keenest interest in the mutual insurance associations recently adopted throughout France, for when their properties are insured they can borrow a larger amount. (See report of group IV of the American Commission to Chaumont.) It is evident that mortgage loans and insurance are very closely related and should be considered together.

The 2 per cent. loans for 15 years, up to \$1,600, granted by the "Credit Agricole," enabling laborers to purchase small parcels of land, afford the "Credit Foncier" an opportunity to dispose of the farms now on its hands at good prices, when divided up.

COÖPERATIVE USE OF AGRICULTURAL MACHINERY

M. Pierre Berdoues, 15 rue Lafayette, Toulouse, Secretary General du "Comite' Republicaine du Commerce et de l'Industrie," bought a threshing set for a Commune of 12,000 inhabitants near Toulouse. There were 200 farmers in the Commune, each owning and operating a farm of 20 to 25 acres, and M. Berdoues, who was mayor at the time tried to get them to combine and buy this machinery but they were afraid to undertake it, so he put up the money himself and started renting it to them.

Each farmer paid \$2 a day for ten hours, and \$2 more for the engine man, for the use of the threshing set. A quarter of a ton of coal and the necessary oil cost \$2 a day of ten hours, and two farm laborers at \$1 a day each cost \$2 more. So the total amounted to \$8 a day, including the moving, setting up, and taking down of the machinery, or 80 cents per hour.

The machine may thresh 100 bushels of grain per hour and require a half day for moving and setting up, so whenever it has to thresh 500 bushels of grain on a farm, the cost will be 1.6 cents per bushel. Large quantities will cost less and smaller quantities more.

The farmers were so well pleased with this arrangement that they requested the mayor to buy other machinery and he did so and rented it to them. A mowing machine costing \$50 was

rented at 40 cents per day, the farmer furnishing the team and the driver. The cost of the first threshing set was \$1,000 and it has paid for itself from the rentals in three years and the mayor has turned it over to the Commune. The Commune now owns one threshing set, two mowing machines, a wheel rake, and is beginning to appreciate coöperative operation.

M. Berdoues states that farm lands near Toulouse are worth from \$80 to \$120 an acre, clover seed raised on the farm \$11 per hundred pound, red wine "du Midi," and from the Pyrenees 4 cents to 6 cents per liter at the vineyard, and in bulk. The vineyard land is worth from \$800 to \$1,600 per acre. Wheat yields 36 bushels per acre, and vineyards produce 4,800 liters of wine, which when sold at 5 cents, give a production of \$240 an acre yearly, with a corresponding operating expense of \$70. The interest charge at 5 per cent. on land worth \$1,200 per acre, is \$60 per year, and incidentals may amount to \$10 more. The taxes may amount to 8 1/3 per cent. on the valuation, adding another \$10 an acre to the expense. This brings the total annual expense up to \$150 per acre so that in a good year there may be a clear profit of \$90 per acre. It must be remembered that in a bad year there may be just as great a loss.

Corn sells at \$1.20 per bushel and all other grain in proportion. Nevertheless the vineyards are the most profitable, provided they have no bad luck, and horse and cattle raising comes next.

COÖPERATIVE BAKERY — TOULOUSE

An organization of bakers decided to form a coöperative bakery because their employers were compelling them to work on Sunday when they only wanted to work six days in the week. They secured the promise of a certain amount of direct custom from among their own number and the friends of their members, and formed a coöperative association for the making of bread. They rent a building and use four barrels of flour every day except Saturday and Sunday, eight barrels on Saturday and do no work at all on Sunday. They sell the bread at the regular market price and divide the profits among their members at the end of the year. They have never made very high profit, but are satisfied because they are more independent.

COÖPERATIVE SALE STABLE FOR HORSES

The farmers near Toulouse who raise cavalry horses, hunters and jumpers believed that it would be less expensive to them to have these horses trained by a high-priced trainer and sold through a coöperative stable in the city. They organized a coöperative society for this purpose and have been only moderately successful. They find that this kind of business does not adapt itself to coöperative management, for the reason that each farmer sends the most inferior stock to the stable, not trusting his finest animals to the care of the trainer. Purchasers sort out the best horses in the stable, so there are always left an inferior grade and this process continues until those desiring to buy at high prices never go near the stable.

BOURGES — CHER

The secretary of the "Syndicat" at Bourges stated that a great deal of coöperative purchasing of fertilizers, seeds, and machinery, was done through his association, and that they now expect to form a coöperative selling society. They think very well of the "Credit Agricole," although there are so many large estates surrounding Bourges, and operations are carried on so extensively that the "Credit Foncier" has done most of the loaning on mortgage. It is hoped that some of these large estates will be divided, and that the small property holders will then make more use of the short time loans and medium time loans offered by the "Credit Agricole."

CONSUMERS' COÖPERATIVE SOCIETY

"La Ruche Berrinjers," a coöperative association of laborers at Bourges, started thirty-two years ago to buy the necessities of life, such as food-stuffs, coal, etc. Ten years ago they had 800 members and now they have 1,200. They have a store through which they aim to sell better goods at the same price or equally good articles at a slightly less price than the independent dealer. They change their manager at intervals of from six to eighteen months, put aside 1 per cent. for amortization and distribute 4 per cent. in proportion to purchases by the members. The members pay an initiation fee of \$1.25 and 60 cents per month dues. They require employees to become members and they buy from the

coöperative wholesale society ("Magazain de Gros des Coöperatives de Franc," 208 rue Saint Maur, Paris). Although not much profit remains to be divided, their existence serves to keep independent dealers from raising prices and reducing the quality of the necessities of life. They have held together for thirty-two years and hope in the future to deal directly with coöperative societies which are now being formed among the producers in the locality.

OBSERVATIONS

The large estate from Paris to Limoges in the Upper Rhone Valley, and the southeast of France have for a long time had satisfactory financial service in mortgage loans from the "Credit Foncier." As a result they have introduced agricultural machinery, chemical fertilizers, and through the advice of the Agricultural Department of France, they have developed modern methods of cultivation.

Extensive farming is the rule and the work is being done mostly by tenants under the direction of superintendents hired by the proprietors. Not much coöperation exists as yet in these localities, but the necessity is now being felt for coöperative marketing associations.

The tendency throughout the south of France is toward the division of large estates so that there may be in every locality a majority of farms owned and operated by those who live on them and averaging about 30 acres, this being the size which requires the entire attention of a farmer and his family. It is desirable to have some smaller farms so that the extra members of the family may be available as day laborers to fill the demand of the larger land holders in the same locality. These larger land holdings are also desirable because there always will be a number of very small farms insufficient in area to support the whole family, the extra members of which require employment by the day.

It was universally agreed that the long term 2 per cent. loans granted by the "Credit Agricole" have done much to stimulate the farm laborers and farmers' sons to acquire ownership of land. It also enables that member of a family who desires to remain upon the farm of his father to buy out the interests of the

other heirs, at the same time helping them to acquire new holdings if they cared to do so.

The short term credit is greatly appreciated and is coming constantly more into use, and the opinion was frequently expressed that through the activity of the "Syndicats" and through private initiative that the "Credit Agricole" would have been adopted even if the Government had not helped to establish it. However, the interest rates on the ten to fifteen year loans would have undoubtedly been at least twice as great, had the Government not made the arrangement with the Bank of France.

It is said that the Government is not actuated by any altruistic motive, but seeing how strong the tendency had become among the democratic people of France to organize themselves, and at the same time hoping to foster its strongest source of recruits for the army in the rural districts, it determined to take the lead in the matter of coöperative credit. This policy has worked out well for the Government and also for the people, the former gaining its objects without cost or risk, and the latter getting better rates of interest and a quicker introduction of the system than they could have possibly attained without Government assistance.

The rate at which reserves are being put aside for the repayment of the amounts advanced through the Department of Agriculture from funds furnished by the Bank of France, would indicate that all the money advanced will be paid back and the "Credit Agricole" be entirely independent before many years.

Such authorities as Mr. Wolff and Mr. Cahill acknowledge that if these reserves are put aside and if the advances from the Government can be repaid that they have to withdraw their objection to the French system of agricultural credit. Mr. Cahill expects to make a special study of the French system as it is now operating and may write a report, similar to the one which he has already written on Germany, in the near future.

Mutual insurance, old age pensions, coöperative buying and selling associations and societies for rural betterment, are all so closely related that no one item like rural credit, the use of modern agricultural machinery, commercial fertilizers, and scientific cultivation, coöperative buying, coöperative selling associa-

tions, etc., may be singled out as the one thing mainly responsible for the prosperity and progress everywhere to be noticed. Each of these elements has contributed its share, and any particular community finds it most necessary to start first with the reform of that element in which it is most backward.

Where interest rates are very high coöperative credit is the subject to reform at once, or to provide. Where marketing arrangements are so defective that it is impossible to sell produce for the amount that it costs to market it, these marketing conditions should be remedied at least as soon as any of the other defects.

Coöperative credit and methods of production appear to be pretty well advanced in France. But coöperative marketing is only just beginning to receive serious attention and what little has been done shows that this method is certain to bring about improvement.

FARMING CONDITIONS IN NORTHEASTERN FRANCE

DAIRY FARM AT CHAUMONT-SUR-MARNE

This farm consists of 205 hectares (506.6 acres), situated at San Martin sur le Pre-Marne, of which 50 hectares (123.6 acres) without buildings, are owned by M. Rigollet le Ronvallet. Adjacent to this property there is a 150 hectare (371 acre) farm with a full set of masonry buildings constructed about a courtyard, and which is rented and operated by M. le Ronvallet and his family. There is an additional pasture of 5 hectares (12 acres) situated nearby, which he also rents.

The principal industry is the production of milk, and the forage and grain necessary for the operation of the dairy are raised on the farm. The farm equipment consists of 1 two horse power threshing machine, 2 mowing machines, 1 reaper and binder, 4 hay wagons, 6 work horses, and 6 young horses raised for sale, 18 milking cows, averaging 12 litres daily throughout the year, 22 additional cows, which were not giving milk at the time, 350 sheep, of which 200 were ewes carried throughout the year, and hogs, poultry, etc.

M. le Ronvallet and his wife have three girls and two boys, all of whom are too young to do much work yet, and they employ one maid in the house at 300 francs (\$60) a year and board, 5 farm



FIG. 164.—CHATEAU IN CENTRAL FRANCE.



FIG. 165.—HARVESTING WITH "BINDERS" ON LARGE ESTATE IN FRANCE.

hands and 1 dairy hand, having sleeping quarters in the barn, at 500 francs (\$100) a year and board, and 1 shepherd at 1,100 francs (\$220) a year without board.

LAND VALUE AND RENT

M. le Ronvallet's land was valued at \$60 per acre without buildings, and that which he rents at \$100 per acre—buildings included.

A rental of 36 francs per hectare (\$2.90 per acre) is paid for the 150 hectares, amounting to \$485 annually. The proprietor pays \$185 a year taxes (40 cents and 55 cents per acre), leaving him \$300 net rental for the 150 hectares (375 acres). According to the estimated value of \$100 per acre, the owner is only getting a \$300 income on the \$37,500 investment, or .8 of 1 per cent., and the renter has the advantage.

FARM BUILDINGS

The buildings are situated on the main road, only a mile distant from Chaumont, a town of 30,000 inhabitants, and about two miles distant from the railroad station, from which the milk is shipped. They consist of one and a half story stone dwelling, a very large hay barn two stories high, a one story sheep barn, cow stable and implement shed, built around three sides of a hollow square, the fourth side of which is separated from the public highway by a high stone wall.

The stable manure is piled in the center of this court yard, and the barn machinery and wagons are left in the open, when the weather is fine, and everything is kept in very neat and orderly manner, though the arrangement is not what would be considered very sanitary in America.

MILK PRODUCTION

A 160 litres of milk are sold daily, being sent in 20-litre tin cans to the railroad station, the price received being four cents per litre. The cows are fed on hay, barley, beets and green forage, according to the season. Only the dry cows are allowed out in the pasture with the young stock.

AREAS CULTIVATED

The total area of the farm as operated amounts to 512 acres, which is cultivated in the following proportion:

Seventy-five acres are devoted to wheat raising.

Sixty-five acres are devoted to rye.

Sixty acres are devoted to barley.

One hundred acres are devoted to oats.

Sixty-five acres are devoted to leguminous forage crops (alfalfa, etc.).

Thirty-five acres are devoted to permanent hay fields.

Twenty-seven acres are devoted to open pastures.

Fifteen acres are devoted to wooded pastures.

Sixty acres are left fallow.

Seven and one-half acres are devoted to beets, for cattle feeding.

Two and one-half acres are devoted to potatoes and garden for family use.

CROP ROTATION

The leguminous crops are left on the ground for two or three years, and the last growth is plowed under. The following rotation is adopted: Wheat or barley, beets or potatoes, oats or rye; potatoes, alfalfa, wheat; alfalfa, barley, alfalfa.

CROP YIELDS

Hay $3\frac{1}{2}$ tons per acre; wheat 31 bushels per acre; rye 36 bushels per acre; oats 50 bushels per acre; barley 30 bushels per acre; beets 15 tons per acre.

FERTILIZATION

Stable manure is applied before planting beets, which are followed with wheat and chemical fertilizer in the proportion of 88 pounds of nitrate, 350 pounds of superphosphate, and 350 pounds of potash. The amount applied ranges from 6.6 tons to 13.2 tons per acre.

HORSES AND SHEEP

The horses weigh 550 to 600 kilos each, and are worth from \$200 to \$250 apiece, and they form a profitable side issue in the farm operations, for all the feed necessary for raising them is produced on the place. Great care is taken in breeding the sheep,

and in 1912, 70 of the lambs were born in one night. The lambs are raised early in the season and sent to the market early, thus demanding high prices.

RELATIVE WAGES IN PARIS

The wages paid to farm laborers in the country being so low, it is interesting to compare the wages paid in the cities. Laborers on temporary construction work in Paris are paid from \$1.60 to \$2 a day, and those employed in factories receive from \$1 to \$1.50. Temporary laborers employed in the immediate surroundings of Paris at harvest time receive from \$1.20 to \$1.80 a day, and those in the interior of France from 80 cents to \$1.40, all without board. The price paid the shepherd, on M. le Ronvallet's farm, for steady employment throughout the year was at the rate of about sixty cents a day, without board.

OBSERVATIONS

Taking into account the low rate of wages and the fairly good average yield of the land at Chaumont, the use of agricultural machinery, the high price of live stock, milk, and other farm produce, and the low rental, it would seem that farming should be profitable to the tenant of the type of M. le Ronvallet. He and his family look prosperous and the children were all being sent to boarding school. The milk was consumed in the town of Chaumont, and the producer had only to deliver it to the station, to receive four cents per litre.

VINEYARDS AT VERZY

Fertilization

The land in this district having a chalky soil, requires sand to be mixed with the fertilizer. The proportions are usually 800 kilos of chlorate and 400 to 500 kilos of nitrate, mixed with a sufficient quantity of sand to bring up the consistency of the soil to the right proportions. When manure is used from the stables, 152,000 kilos per hectare are employed.

The vines are cut back almost to the ground each year, just leaving two stalks of the preceding year's growth about two feet long, and supported by light sticks driven in the ground — no

extended system of support is employed, so that the fields look almost like tomato patches.

The size of the grapes is generally small, but there is a considerable variety in the color and size. A large amount of labor and careful attention is necessary in operating these vineyards, resulting in high prices for the product.

The same fertilization as for vineyards is employed in raising beets, and the production amounts to 20,000 to 40,000 kilos (44,000 to 85,000 pounds) per hectare ($2\frac{1}{2}$ acres), and the price ranges from 25 to 28 francs per 1,000 kilos (\$5.00 to \$5.60 per 2,200 pounds).

CROP ROTATION AND YIELD

In the crop rotation wheat comes after beets, but without any further application of fertilizer, the average yield being 2,500 kilos per hectare. Oats yielding 3,200 kilos and selling at 20 francs per 100 kilos, barley yielding 4,000 kilos at 22 francs per 100 kilos, are also used in the rotation the same as wheat. The next crop is usually hay, generally of a leguminous character, yielding 2,500 to 3,000 kilos per hectare, which sells for 70 francs per 1,000 kilos.

LABOR

Most of the work in the Champagne district is done by the owners with their own families, each of which cultivates a small portion ranging from a half acre up to five acres, or by tenant farmers operating similar areas on share basis. There are some large farms which are operated with hired help; the farm laborers when employed by the year are given their board and an average of 600 francs annually. Day laborers employed at the rush season are paid about \$1 a day, usually without board.

LAND VALUES

Woodland and pastures in this district sometimes sell as low as from \$40 to \$80 an acre, and lands cultivated in potatoes, beets, hay, etc., average \$60 to \$140 an acre. Vineyard lands sell at high prices, the value depending upon the condition of the vineyard. From time to time the vines have been seriously attacked by plant diseases, injured by frost and hail, and some-

times destroyed by floods. For this reason the prices are lower than they are for the best vineyards in the south of France.

Several owners of moderate sized vineyard properties in the district of Verzey, concur in the statement that the average vineyard land is worth from \$800 to \$1,000 an acre — naturally when the vines are damaged the value is much less, and when the vineyards are extremely vigorous and healthy, they may be worth as much as \$1,500 to \$2,000 per acre.

THE POMERAY CHAMPAGNE COMPANY

Rheims, France

The Pomeray Company at Rheims, known as "Veuve Pomeray Fils Cie," has the largest and most celebrated champagne plant in the world, and it has converted an old abandoned chalk mine into a storage cellar for its champagne, and built a storehouse and packing rooms directly above it.

The champagne in quart bottles is stored in enormous piles along the sides of the galleries about 100 feet under ground, to and from which it is carried in baskets holding six bottles each, suspended from hooks on chain conveyors.

We were told that the effervescent quality of champagne is due to the chalky soil on which the grapes are raised, and that the best qualities can only be obtained from the vineyards covering a restricted area of 40 miles radius from Rheims — the champagne district.

Over this territory the vineyards alternate with tracts of woodland, and wheat fields. The average vineyard area operated by one family is about a half acre, and the farmers usually live at some distance from the land which they operate, and in villages.

The vineyardists are organized into a "Producers' Syndicate," which deals either directly with champagne companies or through intermediaries whose business it is to buy the grapes at the farm and transfer them to the establishments where they are pressed into wine.

The champagne companies have acquired all the land they could get for direct operation under their own administration, and they transfer the grapes from the farms in carts, which have been superseded during the last year by auto trucks, to the pressing establishments, from which the juice (must) is carried in

casks holding 200 litres each and stored in the large warehouses where it is allowed to ferment for a period of five or six months.

During the winter the grape juice is transferred from one cask to another about fifty times in five months, and then about forty different kinds of this fermented juice are blended together in a great mixing cask, which is situated in the warehouse above the "cave" (storage cellar), and has a capacity of 17,000 gallons—equivalent to 400 of the 200-litre casks.

The thorough mixing and blending is accomplished by a revolving paddle inside the large casks, which is run by an electric motor. A mechanical bottling machine transfers the champagne from the mixing cask to bottles holding 1 litre each, at the rate of 35 per minute, and these bottles are sent immediately by the chain conveyor down into the "cave" where they remain stored, piled on their sides, for four or five years.

At the end of this period a sediment has collected, which sticks to the under side of the bottle and has to be dislodged by putting each bottle in a machine which revolves and taps it, to release the sediment. The bottles are then put in racks, neck downward, where they are lightly shaken and turned by hand, once a day for three months, until the sediment has entirely collected on the cork in the neck of the bottles, which are next uncorked and a sediment which is about $\frac{1}{3}$ of an inch thick, is blown off. In this condition the champagne is known as "bruit," and is all ready for market, except that it requires to be sweetened to the extent demanded by the people who are to use it. Sugar-cane sirup of the highest grade is added, and this process is known as "dosing."

Champagne for the American market only requires an addition of 3 per cent. of sirup, and is known as "sec," but most European markets demand a much sweeter champagne, requiring the addition of as much as 20 per cent. of sirup. The dosing is performed by hand-operated bottling machines supplied with a measuring device for regulating the proportion of sirup. After dosing, the bottles are recorked with a most excellent quality of Spanish cork, worth 4 cents each. These new corks are wired in place and the bottles transferred in baskets, by the chain conveyor, up the shaft to the packing room, for export.

The packing room is in charge of a foreman, who receives \$1.75 to \$2 a day, and having under his direction four men, receiving 90 cents to \$1 a day, who pack the champagne in boxes and transfer it to the shipping room; and eighteen girls, who receive 60 to 70 cents a day, for putting on the labels and the tinfoil (they are able to handle 15,000 bottles each per day).

There are 450 employees engaged at the champagne plant throughout the year, but the business done by the Pomeray Company is so enormous that their expenses seem insignificant.

Champagne is sold by the Pomeray Company at the rate of \$1.50 to \$2 per 1-litre bottle, at wholesale, and it retails in the hotels of Europe for \$3 per bottle, and in the hotels of New York for \$5. Enough champagne is made each year at the Pomeray plant, to fill 3,000,000 1-litre bottles, and a stock of 12,000,000 bottles is kept in the cave. At \$2 a bottle this represents \$24,000,000 of capital invested in the stock alone.

Champagne hardly ever improves at all after the first four or five years, and it usually begins deteriorating rather slowly in fifteen or twenty years, so it is sold as fast as the market will warrant — however, the Pomeray Company rarely finds any difficulty in disposing of its annual output. Smaller companies may sell nearly as good champagne at wholesale for from 80 cents up, but the Pomeray Company has established its reputation for careful manufacture and reliability, so that it can command the highest price, which rarely falls below \$1.50 per litre.

Owing to the diseases which attack the vineyards, the unfavorable season, occasional damage by frost and hail, the large amount of fertilizer and careful cultivation required, and the restricted area in which the best champagne grapes may be raised, the price is extremely high. Champagne grapes sell at 27½ cents a pound, at the farm, in bulk. The price is agreed upon between the Producers' Syndicate and the champagne companies, and the credit facilities extended to the vineyardists were aided in their establishment by the officials of the champagne companies, because it was feared that the producers would get discouraged, and that there would be a falling off in the champagne grape supply.

WINE-PRESSING PLANT AT VERZY

The wine presses at Verzy are situated in a newly constructed plant of re-enforced concrete, which is built on a side hill, so that the carts bringing the grapes may drive along the upper hillside on a level with the press floor, and so that the juice may be collected in tanks under the presses, and piped from there directly into 200-litre casks in the room below, from which they are taken out on the lower hillside and transferred to the large warehouses.

The press floor and the collecting tanks are all made in one piece of re-enforced concrete, the part under the press being three inches thicker than the rest of the floor for a space of about 10 feet square, and the banks are lined with glazed tiling. A wooden rack about 2 feet high is set up in the 10-foot square space, filled with the grapes freshly brought from the vineyard and covered with a heavy wooden press top, which is forced downward by a large revolving screw, until the juice is all pressed out of the grapes. There were four or five such presses on the floor of the building, all of which could be operated at once.

The grape skins may be used for cattle feed or they may be distilled for the production of alcohol. We were told that the white color of champagne was due to pressing the grapes before fermentation, and that although a great variety of grapes are used, three-quarters of which are blue or black, and only one-quarter light colored, the pigment from the skins is not released when the grapes are pressed before fermentation. In order to make red wine it is only necessary to allow the grapes to ferment en masse, before pressing them.

The Pomeray Champagne Company is a "close" corporation within the family of the man who founded it, and goes by the name of his widow and sons. It owns large estates near the "cave," on which there has recently been established an athletic training field and gymnasium for the promotion of field and track sports. The equipment is perfect and every convenience is provided, the whole being surrounded by beautiful parks.

An attempt has been made to make life in this rural district more attractive and interesting, and seemed to have been inspired in part, with the idea of preventing the grape-growing people

from deserting the country. Although there is a demand for more champagne than can be produced, and the other companies within the district are also able to sell all they can make, there has been a growing tendency for the people who do the actual work to become discouraged and leave the vineyard. It is greatly to the interest of the champagne companies to encourage the vineyardists for the companies make the major part of the profit out of the business.

SPAIN

AGRICULTURE IN SPAIN

Although Spain is preëminently an agricultural country, which under the Roman Empire supported a population of 166 persons per square mile, there are at present only 100 persons to the square mile.

Its total area is 126,000,000 square acres of which 90 per cent. are devoted to agriculture, being seven and one-half times less than the area of farm lands in the United States. The population of Spain (20,000,000) is only four and one-half times less than the population of the United States. Over 16,000,000 acres are devoted to grain raising, and 40,000,000 acres (31 per cent.) are in woods and brush. The largest part of the area is in pasture land (41 per cent.), and 10 per cent. of the area is absolutely sterile.

One may see at a glance that Spanish territory is very little developed. The country is dry, hot and sunshiny, with little afforestation, and not much rainfall, and it loses a large part of what rain it does enjoy by floods, and for this reason has to depend for its best results in agriculture upon irrigation and deep plowing which makes the earth spongy and retentive of moisture.

IRRIGATION

The immediate vicinity of the rivers was irrigated by the Romans and the Moors centuries ago by simply diverting the water from the mountain streams and rivers of the Pyrenees in the north and the Sierra Nevada in the south into artificial channels, and thence into irrigating ditches. However, only about 2 per cent. of the farm lands of Spain have been brought under irrigation in a period of 2,000 years. The reason why they have not extended their irrigation system farther away from the river banks is owing to the expensive character of the construction necessary and the lack of funds available for performing such work.

The northwest Provinces and especially Galicia and Asturias, have a better distribution of moisture and are the main cattle raising regions. The central portion of the country, including



Courtyard of a Sevillian Home

both old and new Castile, are only good for grain raising, having only about eight inches of rain in the spring of the year which is just sufficient to give the grain a good start. Extremadura, bordering Portugal, and the Andalusian Provinces have a few extensive farms where modern machinery is being used with good results, and the same treatment should be applied to La Mancha, in the plains of Castile. The Basque Provinces and upper Aragon are hilly and have a fair amount of moisture, but lower Aragon, Huesca, Catalonia, and Mediterranean coast Provinces all have to depend on irrigation for their best results. The same is so generally of the whole south of Spain, and wherever the proper distribution of moisture has been provided a very high production has been obtained by intensive cultivation. The rugged parts of the country are devoted to fruit raising, vineyards, almond trees, olives, figs, etc.

Everywhere there is a great deal of money needed to carry on the operations as they should be carried on to effect economy in Spain. Large sums are needed to establish irrigation in most sections, and farming in the grain district could be done on a large scale with modern machinery to make it pay.

It is discouraging to the poor tenant farmers in Castile, for they can only get a very meager return for their labor according to the agricultural methods which have always prevailed there, and which are still in vogue owing to the lack of capital with which to buy modern machinery and to carry on farming in a progressive manner. Hard as they may work little good can result from their efforts, so long as what little rain does fall flows away in floods before it can soak into the soil. If they could have traction plowing, the greater portion of the moisture might be retained and the cost of the work lessened.

In the irrigated districts the people are not lazy, for they can see a reasonable reward for their efforts — not so in the dry sections. Most of the land is held in large estates, the owners of which seldom see it, depending upon managers to farm or rent the land. The tenants and small farmers have had little means with which to carry on the operations or to adopt modern methods. Money is scarce in Spain, especially in the country.

About the only way for Spain to progress in agriculture is to

get more money behind its operations, but the question is how to get money and where to get it. It is not a question of farm labor by hand, but rather of great irrigation works and modern machine methods of cultivation.

LAND TENURE

Although the total area of Spain (126,000,000 square acres) is only one-fifteenth that of the United States, the proportion devoted to farming is 90 per cent. of its entire area, whereas the United States devotes only one-half of its area to farming. The population of Spain, (20,000,000) is only two-ninths that of the United States, and the density of rural population is probably about the same. American farms are mostly between 75 and 250 acres in area, with only a few under 10 and over 500 acres, whereas those in Spain are mostly very large or very small, a large part of the area being in holdings from 500 to 35,000 acres, owned by absentee proprietors, and much of the remaining area is in individual holdings, under 10 acres in area, worked by their owners.

The large holdings in Spain are mostly worked on the share system by tenants under the supervision of a local agent of the proprietor, although the tendency is toward the dividing up of the large estates, as provided under the law abolishing primogeniture. Those who work the land are now encouraged to purchase farms of medium size (100 to 200 acres) in the dry farming section and 10 to 50 acres in the intensive irrigated section. Holdings of less than 5 acres are not found to give satisfactory results in Spain, and the farms smaller than that are now being combined. With the abolition of tenure by the oldest son, the large estates are being divided up among the other heirs, many of whom are glad to sell, and this gives the opportunity of purchasing to those who work the land.

In the northeastern provinces, Lerida, Catalonia, Tarragona and Gerona, much of the land is virtually, though not absolutely owned by those who work it. They pay to the heirs of the original proprietors a certain proportion of the income in grain, fruit, etc., annually. In some cases this tribute is purely nomi-

nal, whereas in others it amounts to a considerable percentage of the annual yield. Those who occupy the land have never had to pay much for it and can not be dispossessed so long as they pay the tribute, which is rarely burdensome. They may sell and transfer the property which they are operating, allowing the purchaser to assume the responsibility toward the heirs or the proprietors.

Absolute ownership exists in most parts of Spain, although the records of farm titles are much more perfect for the large estates than for the small farms, for the reason that the large proprietors, being better educated and more familiar with the procedure of registration, have been careful about it; but the small proprietors, through ignorance and disinclination to go to the expense and formality of registration, have frequently neglected to put their properties on record. They have depended upon the right of continuous occupation, and the most serious inconvenience they experience is in attempts to borrow money on mortgage.

CLIMATE

The greatest drawback in Spanish agriculture is the lack of moisture, which is due to the small amount of rainfall, still further aggravated by the destruction of the forests and the high rate of evaporation and the floods which result. The temperature of the lowlands in the south and along the Mediterranean coast is semi-tropical, but that in the high plateaus of central Spain, the northwest and north is subjected to heavy frosts in the winter time. The Pyrenees Mountains in the north and the Sierra Nevada in the south, are covered with snow most of the year, the melting of which keeps up the flow in the streams in the northern Provinces and Granada during most of the summer.

The sun shining brightly most of the time, parches the greater part of the peninsula, especially the plains of Castile where there are few trees, and none of the streams are fed by mountain snows. With an average annual rainfall of about 8 inches in this section, and this coming mostly in the spring time, with little vegetation to hold it back, it escapes in great part in floods. The lands nearer the coast have a rainfall averaging

from 14 to 18 inches, and there being more vegetation in these sections a larger part of it is retained. Even here, to carry on agricultural operations successfully, from 20 to 26 inches more of water have to be added by irrigation.

POSSIBILITIES AND REMEDIES

The great markets of Europe demand more food stuffs than can be produced in the countries immediately surrounding them and pay the highest prices for that which reaches them the earliest in the season. The climate and close proximity of Spain enables it to supply the early demands before any other country on the continent. The remedies necessary to enable Spain to take advantage of this high-priced early market are: (a) Irrigation; (b) modern scientific methods of cultivation; (c) fertilization; (d) proper system of crop rotation, which is always necessary everywhere. Reforestation will do much toward affording permanent relief and should be supplemented by smaller growths, such as permanent meadows, which will assist in holding back the floods. With deep plowing to enable the soil to retain the moisture and facilitate the penetration of the plant roots, the dry farming sections are now having their production more than doubled, even where irrigation has been unfeasible. Land which was formerly left fallow for one-half to two-thirds of the time is now being covered with forage crops, which improves the fertility and prevents the erosion of the soil. This practice is just being instituted and is certain to be extensively followed.

AGRICULTURAL MACHINERY

There is a popular belief that because labor is only 40 cents to \$1 a day, it does not pay to use machinery. This view is not shared by well informed farmers in Spain, and American mowing machines, reapers, etc., are much in demand.

The ocean freight rates from New York to Cadiz or Barcelona amount to \$6 per 2,240 pounds, or 40 cubic feet of volume. The freights from the ports to the interior on the railroads are much higher, amounting to \$15 per long ton to Madrid. The import duty is \$18 per long ton on agricultural machinery,



FIG. 166.—UNLOADING COTTON, BARCELONA, SPAIN.



FIG. 167.—CUSTOMS WAREHOUSE, BARCELONA, SPAIN.

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which is "knocked down and crated" but this is rebated to the agricultural societies (sindicatos).

Example: Mowing machines when knocked down and crated should not be rated at more than a third of a ton each, and they cost less than \$38 each at retail in the United States, so the wholesale price for export should be still lower. The freight amounts to \$2 each, so that they should not be worth more than \$40 f. o. b. dock in Spain; transportation to the interior \$5 each cartage and assembling, \$2 each; commission to the "sindicato," \$3 each; bringing the price up to \$50 to the farmer. This is the price at which they retail to the farmers in France, even in the interior of the country. The American manufacturers insist on selling to general agents in Paris and Hamburg, with the result that the French buy and use our American machinery and manufacture other machinery similar in appearance, which they sell to the Spanish and the Italians and which retails in those countries at \$80 and \$70, respectively, per machine.

El Sindicato Nacional de Maquinaria Agricola, a private manufacturing company in Spain, makes plows, threshing machines, etc., but imports mowers, reapers, etc. Its prices are \$80 for mowers; \$150 for reapers (which retail at \$55 in the United States and should sell at \$80); grain drills, 6 feet wide, at \$130; disk harrows, 5 feet wide at \$80; 1-horse cultivators, at \$45; 2-horse cultivators, for reploting, \$75; 1-horse, 5-point grain drills, \$40; fertilizer distributors, 10 feet wide, at \$150; 1-handle 2-horse plows, at \$12; and spring-toothed harrows at \$30.

Is it any wonder that machinery has not been introduced more rapidly by the small farmers in Spain in view of the prices at which it has been offered to them?

The cost of harvesting wheat by hand, with labor at \$1 per day, is at present \$4 per acre. A reaper with a 2-horse team at \$3 and a driver at \$1 a day can harvest at least 10 acres at one-tenth the cost; it might under most favorable circumstances, harvest 20 acres. Other agricultural machinery is capable of making a proportionate saving, notwithstanding the low cost of labor in Spain.

LIVE STOCK

A comparative statement showing the relation between the live stock in Spain and that in the United States indicates that we have two and a half times more large cattle and only three-fourths as many small animals, in proportion to area, and actually less asses and goats than they have in Spain.

Statistics for 1910

Classes of animals			
Large:		United States	Spain
Horned cattle	61,803,000	2,317,000	
Horses	19,833,000	495,000	
Mules	4,270,000	865,000	
Asses	106,000	835,000	
Total		85,952,000	4,512,000
Small:			
Hogs	58,186,000	2,296,000	
Sheep	52,448,000	15,471,000	
Goats	2,915,000	3,285,000	
Total		113,549,000	21,052,000

The breeding of fighting bulls in Spain is considered very much as that of breeding race horses in England and America. Great attention is paid to it, and the result is that the race has been greatly improved. The finest jackasses in the world are also produced by the Spanish, and they are imported by all other countries for breeding purposes. Mule raising needs encouragement in Spain, for at present the French are exporting great quantities of these animals to their southern neighbors.

The best goats are a brown short-haired variety, native to the Province of Alicante, from whence they are exported to all other parts of the Peninsula. They weigh 55 to 96 pounds each, sell for \$20 to \$35 each, produce from 2 to 2½ quarts of milk daily, and are fed almost entirely on dry alfalfa and beans at an ex-

pense of 9 cents a day each. They live to 16 years of age and are productive from the second year. A large part of the milk supply in all Spanish towns is furnished by goats, which are milked in the presence of the purchaser, being driven from house to house.

There are a few goat dairies which distribute the milk in bottles, and there is a small amount of cheese manufactured from goats' milk. Over 60,000 goats are slaughtered for meat in the city of Barcelona every year, and last year 1,797,754 pounds of goatskins, valued at \$573,647, were exported from Spain.

CROP DISTRIBUTION

	Acres	Per cent.
Extensive cultivation	37,800,000	31
Intensive cultivation	2,100,000	2
Ligneous plants (vines)	7,548,000	6
Woods and brush	12,280,000	10
Pasturage, no trees	48,628,000	41
Absolutely sterile	17,644,000	10
Total area of Spain	126,000,000	100

There are 16,163,190 acres devoted exclusively to grain raising — 9,628,680 acres of wheat, 2,011,150 acres of rye, 3,296,550 acres of barley, and 1,226,810 acres of oats.

Comparative Production

The same kind of land which is valued at \$40 an acre under the old method of dry farming, and which produces about 15 bushels of wheat to the acre every second or third year (and yes), thus averaging about 6 bushels per acre, can be made to produce eight times as much under irrigation, proper cultivation, etc., or 48 bushels of wheat per acre. Examples:

(a) In the province of Lerida, on a farm owned and operated by Senor Don Jose Zulueta, a system of irrigation was put in and the land ploughed to a depth of 18 inches by mechanical traction and \$24 worth of fertilizer used per acre (superphosphates, bone meal and lime). The first crop produced was 558

bushels of potatoes per acre which were sold at the rate of 50 cents per bushel and resulted in a gross yield of \$279 per acre. This land had previously been valued at \$40 an acre and had been producing 15 bushels of wheat at \$1.60 per bushel, giving an income of only \$24 per acre. Deducting the cost of fertilizer, the production has been increased over tenfold and the value of the land to over \$400 per acre. The next crop planted was alfalfa, which was left on the ground for three years, giving an average yield of ten tons per year (14 tons first year, 11 tons second year, 8 tons third year), and the last crop was plowed under, together with another \$24 worth of fertilizer, and a crop of beets planted.

(b) Granja "la Ricarda," property of Senor Don Eusebio Bertrand, one mile west of Barcelona, Province of Cataluna, consists of 750 acres, 250 under cultivation, 250 in meadows, and 250 in lake and woods, and situated in an alluvial plain bordering the seacoast. The owner values the land at \$300 to \$400 per acre, exclusive of improvements. The meadows and the land under cultivation are furnished with an abundance of water from 18 artesian wells, overflowing naturally into irrigation ditches. The owner operates the farm himself, employing a superintendent to look after immediate operations.

The main feature is a dairy of 150 cows, 50 Holsteins weighing 1,500 pounds each and producing 7,700 pounds of milk each per year; 50 Swiss, weighing 1,400 pounds each and producing 3,500 pounds of milk each per year, and 50 Jerseys, weighing 1,200 pounds each, and producing 3,500 pounds of milk each per year on the average. About half these cows were being milked all the time, each one continuing for 10 months and staying dry the other two months. The 75 cows which were not giving milk were mostly young stock and those which were going dry were allowed out in the pasture part of the time. The milking cows were kept in a stable constantly and fed on green alfalfa, dry hay, roots and grains. At some times of the year as many as 100 cows were being milked at a time.

Most of the calves are fattened and sold before they are a year old, the maximum weight being 180 pounds for yearlings, 330 pounds for 2-year-olds, 600 pounds for 3-year-olds, dressed



FIG. 108.—REAFFORESTATION, SUBURBS OF BARCELONA, SPAIN.

weight. The meat is sold in the local market at Barcelona at 16 cents a pound dressed weight. The milk is also sold in Barcelona in glass bottles holding 1 litre (about 1 quart), at 10 cents each at the distributing station, or 12 cents at the apartments of customers.

The milking is done by hand in tin pails having a small top, and taken to a cooling room where it is immediately strained and passed through a cooler and left to stand in 20-litre cans submerged in a tank of running water of 18 degrees (Centigrade), the temperature at which it comes from the cow being 42 degrees C., the 18 degrees being the temperature of the overflowing well water, which is sufficiently low for cooling the milk in the winter time. For summer delivery the cans are transferred from the 18 degree tank to a refrigerating tank where they are chilled to 5 degrees C. before being sent out and then delivered by a wagon carrying 40 cans of 20 litres each to a distributing station in the city. In the month of June 40 cans were being taken each morning, and 35 cans in the afternoon, making 1,400 litres a day.

The proprietor of "La Ricarda" is a very public spirited man, having built this dairy for the purpose of supplying the demand for sanitary milk. The buildings are equipped in the most modern manner, of re-enforced concrete with hollow walls, carefully ventilated, and the entire interior of both the milk cooling room and the milking stables is lined with white glazed tiling, including ceiling, walls and floor. The feed and all the materials are handled by industrial railways and equipment is of the highest order. There is a cooking room for preparing the feed, and every cow is provided with a separate drinking basin supplied with running water, and a separate manger, all of porcelain. They also have a covered manure pit and a large storage wing to the barn, where the hay is stored in bales and the grain in bins.

The farm has an electric plant from which the adjoining village is lighted by electricity as well as all the farm buildings, and power is furnished by it to motors for operating all the stationary farm machinery. There are mowing machines, reapers, grain drills, fertilizer distributors, and a threshing machine which

not only threshes all the grain grown on the farm, but that of the small adjoining farmers as well, for the cost of transporting the grain to this central threshing plant and the moderate fee charged is very much less than the hand method in vogue throughout the country; much time is also saved and the grain is marketed coöperatively.

The purpose of all these improvements has been to demonstrate in this community the advantage of using machinery for agricultural cultivation, the benefit of using fertilizers, leguminous crops, and proper crop rotation. The example is being followed by the surrounding farmers who are now forming coöperative societies to carry on their operations in a similar manner in several of the nearby communities.

GENERAL FARMING OPERATIONS

The dairy and all work connected with it, such as cutting the green alfalfa for feed, and harvesting the grain and hay for the dairy, is operated by a staff of sixteen workmen employed constantly throughout the year under a superintendent and his wife who live on the place, the pay of these permanent workmen averaging 60 cents to \$1 a day at planting time and whenever necessary.

CROP ROTATION

Wheat, oats, rye; corn, artichokes, cowpeas; alfalfa, beets, beans; beets, clover, alfalfa.

Several other crops, such as potatoes, "fava," (a kind of bean which grows on a tall coarse stalk, and is threshed out and fed to the cattle, the stalks being used for bedding), and fruits are also raised on the farm.

The greatest gross income per acre, amounting to \$480 in one year, resulted from raising beets and beans following alfalfa. A gross income of \$300 per acre resulted from alfalfa alone, which was cut every two weeks during seven months, yielding 75 tons green weight (25 tons dry, about \$12 per ton), which was fed to the cows in the dairy. The second and third year production of alfalfa is considerably less than the first, but the average for three years is 14 tons dry per acre. Potatoes, artichokes and vegetables are very profitable to raise, but require a good deal of

labor. The several kinds of grain are grown for the purpose of supplying feed to the stock on the farm, and not because they are the most profitable, although they require the least labor.

Wheat yields $48\frac{1}{2}$ bushels per acre at \$1.60 per bushel, amounting to \$77.50 and the straw which grows six feet high yields $2\frac{1}{2}$ tons per acre at \$10 per ton, making another \$25, and is used as cut feed for cattle. Total gross income from wheat, \$102.50 per acre.

The very great advantage of irrigation and proper methods of fertilization, crop rotation and scientific cultivation are clearly indicated by a comparison between these two examples and the old dry farming methods previously followed. It is also strikingly shown that grain is the least profitable crop under intensive methods.

No amount of careful cultivation and hard work can possibly bring about high production when moisture and humus are lacking in the soil, and now that example has shown what can be done the farmers are coöperating, through their syndicates, to duplicate it.

Las Huertas: The fertile plains between the mountains and the seashore in the Mediterranean Provinces, of which Valencia is the most highly developed, are irrigated partly by diversion of the river flowing through canals and irrigating ditches, and partly from individual wells from which the water is pumped into irrigating ditches. This land is all high in price, ranging from \$300 to \$400 to \$1,000 per acre for lands under cultivation, and from \$1,000 to \$3,000 per acre for citrus fruit orchards. About one-half of the oranges, manderins and lemons grown in Spain are produced in this district, and the total citrus fruit production of Spain amounts to more than that of the United States, being equal to about 20,000,000 American boxes. The selling price last year amounted to a total of \$13,000,000. Oranges are packed in crates holding 420 each and weighing 175 pounds, and which sell for from \$1 to \$1.25 per crate at the orchard.

Onions and potatoes are the next two most important crops in this section, and, like the citrus fruits are mostly shipped to England, The Netherlands and Germany for distribution. Almonds, tamerinds, rice, wheat, fava and many other vegetable

crops are raised in the irrigated section. In the unirrigated section they raise melons, figs, olives, vineyards, locust-bean trees, and some wheat and rye. In both the irrigated and unirrigated sections the introduction of leguminous crops is doing much to add nitrogen and humus to the soil and the yield per acre is just as high as that cited under the examples (a) and (b).

Granja del El Conde de Montornes, Valencia: Professor Antonio Maylin, in charge of the experimental farm of the Count de Montornes, gives the following figures for the production on unirrigated lands in the Province of Valencia, for the last fifteen years: Wheat, 10½ bushels per acre; rye, 17 bushels per acre; barley, 8 bushels per acre; oats, 14 bushels per acre; fava, 6½ bushels per acre; corn, 10 bushels per acre. On irrigated land: Wheat, 35 bushels per acre; rye, 45 bushels per acre; fava, 35 bushels per acre; corn, 44 bushels per acre; rice, 90 bushels per acre; beans, 23½ bushels per acre.

Only 2 per cent. of the area in Spain is farmed intensively and a considerable portion of that was put under irrigation by the Romans and the Moors 1,500 to 2,000 years ago, and it is only within the last few years since transportation facilities have opened the markets of the world to Spain, that the need and advantage of extending intensive cultivation has been felt. The means of accomplishing this has been found in coöperation.

COÖPERATION IN PRODUCTION

There are at the present time some 500,000 farmers in Spain, associated together through 2,500 coöperative societies coming under the general title of "Syndicatos Agricoles." Nearly 1,000 of these have been formed since the law of 1908 exempting them from taxation and extending their privileges; 83 farmers' associations and 100 chambers of agriculture are included in the 2,500. In 1908 there were 856 sindicatos and within the next year 300 more were formed.

Eight of these sindicatos are associations of farmers for putting in irrigation works and six of them for establishing rural police. The great majority of these associations were established by the farmers for the purpose of purchasing seeds, machinery, fertilizers, live stock, etc., for the improvement in production. Their

success in this respect is proved by the rapidity with which they have developed, and an idea of the scope they cover is given by the following list of sindicatos existing in 1909:

Agricultural purchasing associations (sindicatos).....	983
Chambers of agriculture (cameras agricolas).....	18
Coöperative irrigation societies (associations de riego).....	8
Agricultural credit societies (cajas rurales).....	135
Mutual cattle insurance associations.....	6
Rural police associations.....	6
Mutual fire insurance associations.....	1

Several independent coöperative associations having a membership covering nearly the whole peninsula, such as "La Asociacion General de Agricultores de Espana" and "La Asociacion General de Ganaderos del Reino," have been very active through propaganda work in establishing the local sindicatos and in coördinating them in their purchasing operations and encouraging modern methods in production.

Such private enterprises as the Sindicato de Maquinaria Agricola, which manufactures modern agricultural machinery in Spain and sells it throughout the peninsula through agencies, the president being Senor Don Eusedio Bertrand of Barcelona, and La Casa Montornes, of Valencia, which manufactures chemical fertilizers on a very large scale and sells them at wholesale through the sindicatos, the president of which is also the president of the powerful Sindicato Agricola de Valencia, have done a great deal toward introducing improved methods and coöperation in production.

CONCLUSION

Under the influence of the coöperative movement production has been increased in quality as well as quantity; conservation of the natural resources, such as the fertility of the soil and the forests, has been encouraged. The kind of cultivation best suited to the locality is being introduced into the agriculture of Spain, and the region of intensive cultivation is being extended wherever irrigation is possible.

The stock raising industry is being transformed through the development of crop raising, so that the cattle may be fattened

more quickly and better than they were by the former methods of allowing them to depend entirely upon grazing. The industry has been made safer through the introduction of animal insurance and rural police.

The cattle raisers' association is carrying on a campaign of education among all its members, teaching them the requirements of the market, and how they should raise their stock to meet these requirements. It also instructs them in the introduction of better kinds of stock and helps them to improve the breed.

The Department of Agriculture has traveling professorships in several Provinces, and experimental farms on which the modern scientific methods of farming are being demonstrated, and they also make separate demonstrations on the farms of the various parts of the country.

The experimental department in the combating of plant diseases, of which the King is the president, has stations in each of the Provinces, and the director of each one of these stations is authorized by law to undertake the extermination of plant pests whenever they may be reported to him. Senor Don Jaime Nonell-Comas, of Barcelona, in charge of the cryptogramic department in Cataluna, has a very complete museum with life-sized reproductions of the most prevalent plant pests, and in connection with each there is a remedy which he has worked out for overcoming it.

The law authorizes him to go with a staff of experts wherever an outbreak of plant disease is reported and to proceed at once to suppress it. The owners of the property on which the plant disease is started may either furnish the common labor necessary in the suppression of the epidemic or may pay the cost of the same. The government furnishes the expert direction, chemicals and apparatus.

The result has been the overcoming of such diseases as phyloxera, which threatened to exterminate all the grapevines, not only in Spain, but in the other European countries, and also the overcoming of the citrus-fruit tree diseases. A remedy has been found for almost every disease which has yet appeared, and co-operation has been the most influential factor in enabling this program to be carried out.

ENGLAND, SCOTLAND AND WALES

AGRICULTURAL CONDITIONS IN ENGLAND, SCOTLAND AND WALES

The most striking feature is the large amount of land devoted to pasturage. The coöperative societies for production are most important in milk production and poultry raising, several important dairying societies and egg-collecting associations existing in various parts of the country. In connection with these there are also purchasing departments for fertilizers, agricultural machinery and seed. The farmers receive from 4 to 6 cents per quart for their milk delivered locally, and the consumers pay from 8 to 10 cents a quart for milk delivered in London, from 6 to 7 cents in Glasgow and about the same in Bangor, Wales. Eggs sell at retail for about 6 cents more a dozen in London than the collecting societies get for them, and the prices in July, 1913, were 31 cents per dozen for first quality, four days old; 29 cents for eggs from four to seven days old, and 25 cents for eggs more than a week old. In the winter time the first grade eggs are worth 54 cents a dozen, and retail in London for 62 cents a dozen.

IRELAND

AGRICULTURAL CONDITIONS IN IRELAND

Although Ireland is one of the last countries in Europe to improve its agriculture and to adopt modern methods of production, transportation and distribution of its farm products, it has within the last fifteen years accomplished a great deal, mainly as a result of its adoption of the principle of coöperation.

On July 16, 1913, a subcommittee of the American Commission visited the "Ardmire" dairy farm owned by the Richards family of Wexford. This farm embraces 300 Irish acres which are equivalent to about 500 English acres, and has been owned by the Richards family since 1819.

The dairy herd consists of 70 cows — Shorthorns crossed with native stock — of which 45 were being milked. A record of each and every cow is kept, showing the number of pounds of milk the animal produces and the value of the milk when sold. The average annual production of milk per cow was said to be about 8,000 pounds.

The production record of a few of the choice cows is of interest. From May 14, 1911 to November 1, 1912, for instance, one cow produced 14,490 pounds of milk, with a market value of \$191.70. The animals are tested, and any cow producing less than 6,150 pounds a year is taken from the herd and sold.

The milk is sold at the rate of 23 cents per pound of butter fat. The average richness of the milk is 3.03 per cent. of butter fat.

Jacobs & Co., biscuit manufacturers of Dublin, buy most of the output of the farm for 3½ cents per quart in summer and for 4¼ cents per quart in the winter — a quart weighing 2.58 pounds. A creamery in the vicinity takes the excess of the milk not demanded by Jacobs & Co., at 2¼ to 3¼ cents, according to the season, and returns the skim milk and the buttermilk to the farm.

The farm is divided into about 200 acres of pasture land, 75 acres in hay, 20 acres in oats, and 5 acres in beets and turnips. The prices paid for feed for the cows are \$1.34 per hundred pounds for brewers' grain, \$50 per ton for cotton cake, and \$2.50 per hundred pounds for ground wheat.

Power and light for the barn and residence is furnished by a suction gas plant, which uses small particles of anthracite coal, producing power at a cost of a quarter of a cent per horsepower per hour.

THE BALLYCANNEW COÖPERATIVE AGRICULTURAL SOCIETY

A visit was made to the Ballycannew Coöperative Agricultural Society, which consists of a butter-making plant and a store located above the creamery, which handles foodstuffs, fertilizers, groceries, machinery, hardware, and in fact practically everything except drygoods. This society began in 1895 with a capital of \$1,500; shares at \$5, on which \$1.25 was paid. Members hold as many shares as they do cows. The society pays 5 per cent. dividends, and places the balance of the profits in the reserve fund, which now amounts to about \$10,000, and is used to finance the store operations. The plant is at present worth about \$15,000. About 150 farmers supply the creamery with milk. After the milk is separated the farmers take back approximately 85 per cent. of the deliveries in the form of skim milk. At the height of the season more than 100,000 quarts are supplied daily. It requires, so it was stated, $9\frac{1}{2}$ quarts of milk (each quart weighing $2\frac{3}{4}$ pounds) to manufacture 1 pound of butter. The butter is sold in London at the rate of $26\frac{1}{4}$ cents per pound f. o. b. at the plant. Milk is bought at the rate of $2\frac{1}{4}$ cents a quart in summer and $3\frac{1}{4}$ cents a quart in the winter. The milk must test 3.5 per cent. butter fat.

The working force of the society consists of a superintendent, who receives a salary of \$600 a year and house, an engineman at \$15 a week, 2 store clerks, and 6 creamery hands, at an average wage of \$20 a month each.

The plant brings in about \$19,440 a year.

The hauling to and from the station of the store supplies and the butter is done under contract by a man who has two 1-horse carts with a capacity of a ton each, and which makes four trips a day. This man carries 5 to 35 56-pound boxes of butter to the station, a distance of four miles, twice daily, and returns loaded with one ton of merchandise on each cart. He receives under his contract \$2.50 a day. Butter is sold locally at 25 cents a pound.

The society pays for the milk from samples taken daily. Members are sold goods at the store on credit, in view of the fact that they carry current accounts at the creamery for the milk supplied.

DOYNE FARM AT WILLSGOREY

This farm, owned by C. M. Doyne, contains 900 acres of grazing, wood and cultivated land, worth \$75 an acre. It is stocked with 500 sheep and lambs, which on an average weigh 66 pounds dressed, for which 18 cents a pound can be secured, amounting to about \$12 for each animal for meat, and \$3.40 more for the skin. The best bucks are worth \$100 and weigh 224 pounds each. Ewes are worth \$30 when for exhibit.

In addition to the sheep there are about 150 head of cattle on the farm. The weight of the beef animals is from 1,400 for 2-year-old to 900 pounds for the 1-year-old animals.

The average size of the farms in the immediate vicinity is 40 acres, supporting from 8 to 10 cows each.

ENNISCORTHY COÖPERATIVE AGRICULTURAL SOCIETY

The objects of this society, as expressed in rule 3 of the special regulations of the society, are as follows:

“To carry on the occupations of commission agents, wholesale and retail dealers in farm and garden produce, seed, artificial manures, feedstuffs, agricultural implements and machinery; breeders, exporters and importers of live stock, bankers and general dealers in any class of goods the committee may direct; to obtain and disseminate useful information among its members and generally to develop and promote the coöperative movement in Ireland; to carry on any occupation or manufacture that the committee may deem desirable. It shall be lawful for the society to do all things necessary or expedient for the accomplishment of its object.”

The plant of the society consists of a large building, situated on a courtyard, in which there are departments for manufacturing harness and leather goods; for the assembling of machinery and the storage of hardware and of fertilizers; also departments for groceries, seeds and foodstuffs, and for the manufacture and sale of carriages, paints, oils, etc.

The society was founded in 1905, and in 1912 had 930 share-

holders. It sells farm machinery as follows: A reaper and binder for \$120; British mowing machine for \$55; and American mowing machines, which cost the society \$52.50, are sold for \$57.50.

The society borrows money from a local joint-stock bank at a rate of 1 per cent. under commercial rate on the signature of the members of the board of directors. Five per cent. is paid at present. Liability is limited to the amount of the shares held. Three per cent. interest is paid on funds that are deposited with the society. The society has no mortgage debt.

In the year 1912 the society made sales to the value of \$102,060, out of which it realized a profit of \$11,853.54. The expenses this year were \$8,679.96. Deposits at the end of the year amounted to \$16,368.48.

Goods are sold both for cash and on credit to the members, but only for cash to non-members. Members participate in the profits. Wages are paid at the rate of 50 cents a day of 10 hours. The society also arranges contracts for special coöperative insurance.

In the country around Enniscorthy, land which sold for \$48 an acre eight years ago is at the present time worth from \$75 to \$100 an acre.

BENEFITS OF COÖPERATION

Mr. T. Alex. Rudd

Speaking of the benefits which coöperation has brought to the farmers of Wexford county, Mr. T. Alex. Rudd stated that manures were now from \$5 to \$10 cheaper than they were prior to the introduction of the coöperative institutions. Binders which previously sold for \$179.82 could now be bought for \$116.64. Coöperation in any section was a benefit to the larger farmer as well as to the small farmer. In Wexford county they got seeds for less now than they paid the regular seed firms for sweepings five years ago. They were getting better seeds and better fertilizers than prior to the establishment of coöperative societies.

INSPECTION OF LABORERS' COTTAGES BUILT UNDER BOARD OF GUARDIANS' ACT

A number of laborers' cottages built under the Board of Guardians' act were visited, and a brief statement of the system on which they are provided may be of interest.

These cottages were built to replace the old mud cabins. Outside dimensions of the cottages are 16 by 24 feet, and 12 feet to the eaves, with 8 feet more to the peak. They are divided into four rooms. A 3 by 4 window is located in each gable on the second story. The entrance door is located in the center, with a 3 by 5 foot window on either side of it. A big fire place is provided in the center.

The cost of construction is from \$600 to \$750. The land on which the cottages are placed costs \$20 an acre. A cottage and half an acre of ground is rented for 18 cents a week, and 20 cents a week is charged for a cottage and one acre of ground. These houses are intended to be occupied by agricultural laborers with families, whose wages run from \$2.50 to \$2.75 a week for day work, and up to \$5 a week for night work. The cottages are constructed and allotted by the rural district counsel only to married persons, and as the families increase the rents are decreased.

Local proprietors who have to depend upon this class of labor say that these laborers are made so independent with their house and little plot of land that they will only do as much outside labor as is necessary to eke out their existence, and can not be relied on as a dependable labor supply.



Coöperative Creamery, Ireland

RESULTS OF COOPERATIVE ENTERPRISES

THE SOCIETY FOR PURCHASING AND PRODUCTION AND THE REGIONAL BANK OF LOIR-ET-CHER

Statement by the manager

"SYNDICAT"

"Le Syndicat des Agriculteurs de Loir-et-Cher" has at the present time 16,500 members, that is to say it includes nearly all the farmers in the departments.

The service which it renders to its members is of a double nature, moral and economic.

The report which our President will present next month at a congress at Clermont-Ferrand and of which we are furnishing you with the proof, indicates what we have done from the moral standpoint, and the present note has simply for its object to show what has been done in an economic way, more exactly to show what we are doing at the present time, for in a pamphlet published in the beginning of 1905 on the occasion of the International Exposition at Liege, you may read the entire history of our association. Our agricultural purchasing department is operating in exactly the same manner as it did in 1904, except that there were then only 7,375 members (less than half our present membership), and our operations only amounted to 11,400,000 kilograms of goods valued at 1,400,000 francs (\$280,000), whereas in 1912 we have delivered 26,000,000 kilograms at a value exceeding 4,500,000 francs (\$900,000).

If we have developed so much and succeeded so well in a few years in grouping together so large a membership it is because our services have been so greatly appreciated. These results have been obtained with the help of the "Credit Mutuel Agricole," which has enabled us to organize our purchasing department on a commercial basis. Since 1902 our "Syndicat" has purchased for cash all goods ordered by its members; with the funds which

the "Credit Agricole" has placed at the disposition of the "Syndicat" it is able to make very advantageous arrangements with the wholesale dealers through the prompt payments which it can make. Since adopting this method of procedure, our orders are very much sought for and we always obtain the lowest prices. Therefore, it may be said that the "Syndicat" owes its success to the "Credit Agricole," but it may also be added that the credit bank has found equal advantage in the business furnished all by the "Syndicat" which is the true cause of its prosperity. The regional bank of Loir-et-Cher is today one of the most prosperous in France, because it has found in the "Syndicat" in addition to a hospitable roof, a clientele entirely adequate to bring to it each year the important amount of business which it enjoys.

During the last ten years our two societies have united in bringing to the farmers of Chartres the greatest advantage.

Naturally the great extension of the "Syndicat" has not been accomplished without bringing some prejudice to the independent dealers who formerly furnished the farmers with: fertilizers, seeds, vineyard products, machinery and agricultural implements. And since 1908, the date of our twenty-fifth anniversary, our real power has become known. At the immense banquet of 5,000 covers, presided over by the Minister of Agriculture in person, the combination of independent dealers in our city was brought up short in their attempted monopoly and are no longer able to take advantage of our farmers. It may be said also that our daring has not proceeded without giving some concern to the inspection service of the agricultural credit societies, because of the importance of the business carried on which has caused the "Syndicat" to become a debtor to the regional bank for amounts which have been considered too great. The "Syndicat" has taken full advantage of the borrowing facilities provided by the "Credit Agricole" which were necessary for making the payments required on the business demanded by its members. Our managers are not only very devoted people but they are also very regular in their attendance and careful in their advice and sensitive to criticism, and they have advised the members to so arrange their orders that an accounting may be reached every three months. In this way all notes may be kept within a limit of from three

to six months and discounted in the credit bank. In this way the "Syndicat" is able to devote itself entirely to purchasing the requirements of its members, and the bank takes care of the credit facilities of which these purchasers have need.

* * * * *

Our "Syndicat" has discounted each year several hundred thousand francs in notes and it possesses at the present time a reserve fund in excess of 250,000 francs (\$50,000). With this small fortune it has been able to buy the property on which the building containing its office and storeroom is situated; it has installed a branch at Romorantin in a building also belonging to it; it has constructed at several points in the departments large warehouses in which fertilizers are stored during the inactive season, thus insuring prompt deliveries at the time of planting.

Because of the importance of its reserve fund the "Syndicat" has been able to aid in the creation and development of agricultural credit locals and agricultural coöperative societies, toward the foundation capital of which it has contributed, as well as directing and indicating the most economical manner in their management.

* * * * *

COÖPERATIVE PURCHASING SOCIETY

Since in 1908 the "Cour de Cassation" decided against the right of the "Syndicat" to perform purchasing operations, our managers were forced, like all the farmers of France, into the new situation occupied by the "Syndicats Agricole."

Seeing that Parliament did not receive cordially the projected law presented by M. Ruau, Minister of Agriculture, and fearing the antagonism on the part of the commercial combinations, we have created in the beginning of 1911 a corporate society which has for its object the performance of all such operations as were prohibited to the "Syndicats," notably direct purchasing for the farm and the storage of goods, in anticipation of the future need of the members.

In the beginning this society concerned itself with operations relating to farm equipment, which were ruled as being outside the purchasing scope of the "Syndicat," but although they

had the right to purchase and supply fertilizers, seeds, cattle-feed and insecticides, and the only remaining goods are under the head of farm equipment, this last item is the most difficult of all, though not the least interesting, for everyone knows that the farmers pay a very much greater profit to the intermediaries on their machinery and tools than is paid on fertilizers, seeds, etc.

If you care to spend a few minutes in examining the account rendered for the year 1911 and 1912 you will be able to see what our purchasing society has accomplished. In 1911 it did 460,000 francs (\$92,000) worth of business and in 1912 more than 500,000 francs (\$100,000) worth. Judging by the results of the first semester of 1913 we estimate that more than 600,000 francs (\$120,000) worth of business will be done this year. In order to attain this result we have had to provide for about fifty representatives (*Charrons et marechaux*) charged with making repairs and keeping our machinery in operation. These collaborators naturally receive some remuneration from this work. We have just now completed this organization and established here at Blois a workshop operated by good mechanics engaged in assembling the agricultural machinery which we receive in car-load lots "knocked down" directly from the manufacturers. We also make at this shop such repairs of a minor character as our members require.

We consider it our duty not to offer to our members machines of any other construction than French, and we only deal with foreign manufacturers when it is absolutely necessary. By so doing we make it clear that our object is purely patriotic and that we do not deprecate the excellent quality of American machinery, nor the considerable service which it has rendered to the agriculture of our country.

Our coöperative purchasing association has no connection whatsoever with the "*Credit Agricole*;" but lives entirely upon its own resources. Starting with a capital of 100,000 francs (\$20,000), within the last year it has raised this capital to 300,000 francs (\$60,000).

Besides furnishing agricultural machinery at very reasonable prices to the farmers, we have accumulated 65,000 francs (\$13,000) of reserve during the first two seasons; thus giving an indi-

cation of the service which coöperation may render along these lines.

The relationship between the "Syndicat" and the "Société d'Approvisionnements" is regulated in the most simple manner; in reality the latter is simply the agent, but a disinterested agent, which is satisfied with a reasonable profit and which confines its deliveries entirely to the farmers adhering to the "Syndicat."

In compensation for these advantages the "Syndicat" places, gratuitously at the disposition of the purchasing society, housing facilities on its premises, in which the machinery destined to the members of the "Syndicat" may be stored. However, the purchasing society owns the premises on which its assembling plant is situated.

All the stockholders of the purchasing societies to the number of about 500, are required to be members of the "Syndicat;" according to the terms of the constitution, the interest paid to the stockholders may not exceed four per cent. As may be seen, the society is essentially coöperative, although it has a commercial form.

AGRICULTURAL CREDIT

Our first local society for agricultural credit was founded under the auspices of the "Syndicat" on July 19, 1902, and was from the beginning affiliated with the Regional Bank of Chartres.

This first local had for its sole object the procuring of the sums necessary to enable the "Syndicat" to buy for cash all the requirements demanded by its members.

The Regional Bank at Loir-et-Cher was not created until December, 1903, and it is since that date that all the locals of the Departments have been organized. This organization has been accomplished in a few years, thanks to the happy collaboration of the Department of Agricultural Instruction in the "Syndicat." The Professors of Agriculture have taken charge of the propaganda, and after the meeting for foundation we take in hand the young societies at first because in our region the transportation facilities and means of communication are ample and market days frequent; for this reason there is generally only one local for each canton — two at the most. However, there are

special cases where additional locals may be established to provide for the seat of some marketing point.

In France almost all our credit societies are established under the law of 1894, receiving subsidies from the State, and are subjected to the control of the Minister of Agriculture.

For this reason they all resemble one another in a general way at least, and since we are in excellent relationship with our neighbors of Chartres and of Mans you will doubtless notice a close analogy between what we are showing you and what you saw yesterday.

The special features of our organization consists in its relationship to the "Syndicat."

We have always surrounded our affiliated local societies with every precaution, for we consider that the vitality of mutual credit depends as much upon good organization of the locals as upon the good organization of the regional banks. After having facilitated the creation of these locals we have broken in their bookkeepers to the delicate task they have to perform. We reduce their expenses by furnishing gratuitously the blank forms, registers, and such other stationery as they require.

Finally we take care of their bookkeeping in case they are unable to secure a proper employee to do so, and also because we have to follow their operations in the smallest detail.

At the present moment "Caisses Locales du Loir-et-Cher" have a membership of about 4,000. This is exactly the number of members which the "Syndicat" had fifteen years ago. We think it will take less time to quadruple this number because the "Credit Agricole" has been developing with giant strides during the last few years.

AGRICULTURAL "SYNDICAT" FOR THE SURROUNDINGS OF CHARTRES, CHATEAUDON, AND NUGENT-LE-ROTHOU

EURE-ET-LOIR

Statement by the manager

The Agricultural "Syndicat" of Chartres was founded on July 1, 1886, by ten farmers at the head of whom was Senator Vinet, President of the Association.

At this epoch the trade in commercial fertilizer, the employ-



FIG. 169.—PASTURE OUTSIDE TOULOUSE, FRANCE.

ment of which had become indispensable, was in the hands of unscrupulous dealers who profited by the ignorance of the countrymen who sell inferior products at high prices, having a minimum of fertilizing value. Many farmers who had never used fertilizers of any other kind stopped using them entirely because of the poor results obtained.

The origin of the "Syndicat" was, therefore, due to the unfortunate situation in regard to fertilizers, and the original territory covered was limited to the surroundings of Chartres. This territory was progressively extended as the utility of the association became known to the farmers, and today through having united with the "Syndicat" of Chateaudon and Nugent-le-Rotrou, and several adjacent cantons it has attained its present proportions.

The "Syndicat" purchases fertilizers according to semi-annual estimates at the seasons corresponding to seed time in the spring and fall. A contract imposing special conditions on the fertilizer dealers is accepted without reserve by all responsible dealers and it guarantees to the members of the "Syndicat" the composition of the fertilizers and that they shall be delivered in good condition and with dispatch.

The Agricultural Station of the Department also makes analyses of the fertilizers on delivery and when there is a just reason the fertilizer dealers are required to pay a fine to the "Syndicat."

In 1912 the operating expenses reached the sum of 5,000 francs (\$1,000) and were advanced by the credit department of the "Syndicat."

The "Syndicat" also serves as an exchange for seeds and agricultural products between its members.

Its resources are composed of: An annual fee, 2 francs (.40), paid by each member; a rebate of 2 per cent. paid back by the fertilizer dealers for cash settlement, which amounted on December 31, 1912, to 173,529 francs, 65 centimes (\$34,705.81).

The importance of its operations is shown by the movement of funds which was attained in 1912; receipts 2,607,281.05 francs (\$521,456.21) and expenditures 2,583,165.10 francs (\$516,630.02).

The following table will bring out the continual growth of the operations of the "Syndicat" since its creation:

Year	Membership of "Syndicat"	Fertilizers delivered Kilos *	Value of fertilizers France †
1886	54	240,875	24,157.80
1888	506	2,687,830	291,148.05
1890	1,290	3,761,407	393,799.29
1895	2,668	6,195,313	516,503.94
1900	3,543	6,761,883	577,770.78
1905	4,398	8,099,432	620,467.10
1910	5,915	11,336,015	1,042,651.75
1912	7,027	14,317,891	1,346,454.20

At the present time the membership (July 1, 1913), is 7,305.

Fertilizers ordered in amounts of 5,000 kilos are delivered directly to the railroad station nearest the members uniting in the order and distributed through the twenty-five depots placed at the different community centers for the receipt and distribution of the separate orders. These depots render the very greatest service to the small farm because farmers who use only one sack of fertilizer enjoy the same guarantee and proportionate price as those using one or two hundred sacks.

In order to instruct the members in the judicious use of fertilizers, the "Syndicat" has undertaken for the last fifteen years the preparation of agronomic charts, on which the character of the soil in each commune and the corresponding fertilizers most advantageous for each are clearly indicated.

At the present time 230 communes are provided with these charts, the expense of this important work having been more than 75,000 francs (\$15,000).

The "Syndicat" has not been unmindful of the moral interests of its membership, for it has from the first provided gratuitously a monthly periodical entitled "*Le Bulletin Agricole de l'Ouest*," the official organ of a number of "Syndicat" in this region. Since 1904 it has replaced this bulletin by a semi-monthly publication, "*La Defense Agricole*," which is published directly by the "Syndicat" and furnished free to its members.

There is also a fully equipped library in which the members may seek instruction during their leisure time. The "Syndi-

* A kilo is equal to .0011 tons.

† A franc is equal to \$.20.

cat" does not wish to limit its scope entirely to the purchase and control of chemical fertilizers.

Subsequent to the promulgation of the law of November 5, 1894, on agricultural credit, the "Syndicat" has been occupied in inducing its members to profit by this law, and has created a Chartres, not without great difficulty a "Societe de Credit Mutuel Agricole." As soon as the law of 1900 instituted regional banks for agricultural credit, one was founded for "Beauce et du Perche," and there was created in each of the surrounding cantons, with the grouping together of the farmers in each locality, a local credit society similar to that at Chartres.

More recently since the adoption of the law covering agricultural "coöperative" the "Syndicat" has responded vigorously to the appeal from the progressive farmers who have requested it to aid them in profiting by the provisions of this law. We have thus contributed to the creation of the "Coöperatives de Sancheville, du Gault-Saint-Denis et de Fresnay-l'Wveque," as well as of several dairy "Syndicats."

Each year the "Syndicat" has organized a course of agricultural instruction through the "Instituteurs." The work is examined by a jury composed of the inspector of the academy and the primary inspectors and five members of the Board of Directors of the "Syndicat." Prizes are given to the teachers as well as to the pupils who are adjudged most worthy.

The winter school of agriculture created by the General Counsel d'Eure-et-Loir, at the "Lycee de Chartres" as well as the domestic science school which was also established by the "Assemblée Departementale," are subsidized by the "Syndicat."

It brings within its scope, therefore, the study and correction of all questions affecting the prosperity of the national agriculture.

DAIRYING

THE CENTRAL COÖPERATIVE DAIRY ASSOCIATION OF CHARENTES- AND-POITOU

(140 factories — 80,000 members)

Statement by the manager

NOTES ON THE CENTRAL ASSOCIATION

The first coöperative dairy of Charentes was established at Chaille, 3 kilometers (1.86 miles) distant from Surgères, in 1888. The following year seven new associations were founded, and in 1893 there were forty of them in the region.

The Central Association of these dairies was founded in 1893. Today it counts 129 subsidiary societies, distributed over the several departments of the west, included within the territory of Nantes, Tours, Limoges and Bordeaux.

In 1912 the syndicated dairy societies had a total membership of 77,265, the total number of cows belonging to these members being 205,557, an average of $2\frac{2}{3}$ cows per member. Our Farmers Accident Insurance provides for an average of 10 hectares (25 acres) per member. This area evidently does not correspond to an average of $2\frac{2}{3}$ cows per member, so we must conclude that the majority of the very small farmers owning one or two cows are not yet covered by accident insurance.

The syndicated dairies have received 332,000,000 litres of milk in 1912, making an average of 1,614 litres per cow, the production of butter being 15,350,000 kilos (33,770,000 pounds). This represents a yield of 21.63 litres, and an average production of 75 kilos per cow annually. This quantity of butter brings in an annual income of 45,750,000 francs (\$9,150,000) annually. This price based upon an average of 2.98 francs per kilo (27½ cents per pound). The skim milk, valued at 4 cents per litre, amounts to \$1,328,000 more or a total annual income of nearly \$10,400,000.

The average cost of manufacture amounts to 11 per cent. of the receipts, or 0.303 cents per litre of milk. The expense varies in the several creameries from 0.12 cents to 0.54 cents.

There are several different breeds of cows in this region. In deux-Sevres they have the Parthenaise breed, remarkable for their butter-producing qualities; certain dairies produced a kilo of butter from 18.85 litres of milk (a pound of butter from 8.57 litres of milk or 7.79 quarts). The average for a year is 1,566 litres (1,423 quarts) per cow of this breed.

In the district of Vendée they have a variety of Parthenaise called "Vendeenne," which is also a butter producing breed, and in this department the dairy which has the highest yield, amounting to 1 kilo of butter from 20.89 litres of milk, also has a production of 2,000 litres of milk per cow annually (1 pound of butter from 8.64 quarts of milk with 1,820 quarts of milk as an annual average production per cow).

In the other departments, notably in that of Charente-Inferieure, the milch cows are of all breeds; the predominating breed being Normandy and Durham. Here the quantity of milk per cow is very much greater. At Sergeres, for example, we find an average of 2,546 litres, but the butter production is only a kilo for 23 litres (annual yield per cow averaging 2,314 quarts of milk, but requiring 9.5 quarts of milk per pound of butter). At Sainte Soule, near La Rochelle, we find an average annual production of 2,245 quarts of milk per cow and 1 pound of butter for each 9.18 quarts of milk.

Our association has had to organize various departments in order to fulfill its object, namely, to perfect the manufacture of butter. It has had to improve the equipment of its factories and also to occupy itself with the general interest of the dairymen, notably as to the transportation of butter to the Central Market of Paris (Halles Centralles), which is the principal outlet for our production.

As to technical services, the society has an inspector in control and in charge of the manufacture and equipment of the dairy plants. This inspector is at the same time director of an experiment station and a dairy school, the latter being installed on the property acquired by the Association and placed at the disposition of the Minister of Agriculture for a State Establishment, having the double function of dairy school and experiment station.

The whole is completed by the union of the 129 syndicated

societies, the coöperative creamery of Surgeres, created in 1894 and which at the present time handles 16,000 to 18,000 litres of milk per day during the summer. The pupils of the school number from 20 to 30, the number being sufficient to perform all the necessary operations. They remain one year in the school, but their theoretical study is completed during the first six months, after which they go out and serve an apprenticeship among the 129 syndicated dairies, where their service is valuable for they fill vacancies temporarily caused by the sickness of regular employees and those who are away on vacations.

In this way a close relationship is created between the dairies and the scientific central dairy department, insuring a general diffusion of progressive methods. Besides, the personnel, notably the head of the laboratory department, gives such advice and information to the creameries as they may be in need of in order to improve their manufacturing methods. In addition to the general inspector of creameries there is a master mechanic, a specialist in creamery equipment,—such as centrifugal cream separators and refrigerating machinery. The business between the creameries is provided for by automobiles which are at the disposition of the personnel.

The transportation of butter has been carried on since 1898 in refrigerator cars, of which the Association has 18. It also has special employees in charge of receiving and loading the packages of butter, and at Paris a general agent in charge of transporting the butter from the station to the Central Market.

The cars are distinguished by being painted white on the outside, provided with double doors and compartments to hold 600 kilos of ice per car. The temperature on arrival rarely exceeds 10 or 12 degrees centigrade. In order to supply these cars the association has created at Surgeres an ice plant, the installation of which cost 80,000 francs, and which is capable of producing $7\frac{1}{2}$ tons of ice per 24 hours (metric tons — 2,200 pounds). Only four or five tons are required for the refrigerator cars, the balance being sold to the creameries at 25 francs per ton (22.7 cents per 100 pounds).

In a general way the Association is divided into three sections:



FIG. 170.—SHEEP ON THE SPANISH SIDE OF THE PYRENEES MOUNTAINS.



FIG. 171.—GARDENS AT SEGOVIA, SPAIN.

1. The Central Credit Department including such general services as insurance of the employees of the creameries, arrangements for expositions, purchasing of such raw materials as coal, other fuel, etc., pension to old employees, encouragement of butter-making competition, and for the treatment and transformation of residuary products.

2. Mutual Agricultural Accident Insurance Societies, of which two special ones were created two and a half years ago, and the results of which for the year 1912 are as follows:

Farm proprietors insured, 10,164.

Area included in this insurance, 151,775 hectares, being an average of 10 hectares per farmer.

Number of accidents during the year 1912, 908.

Receipts (premiums paid in)..... 75,741.59 francs

Expenditures (including settlements).... 77,241.59 “

Deficit of 1,500.00 “

The premium which amounted to 50 centimes per hectare (10 cents per 2½ acres), has been raised to 60 centimes on January 1, 1913, which will increase the receipts by 13,000 francs (\$2,600).

3. The Caseine Department, created only about eight months ago to permit the creameries to carry their manufacturing process into the second stage of producing casein as a by-product, and to do away with the intermediaries who formerly did this work in an inferior manner and paid the creamery less than it can make by the direct manufacture. The attached table of creamery commissions gives a good idea of the exact interior organization of the association from the latter viewpoint.

The coöperative creameries have been the salvation of all that region where the phyloxera (disease of the grape-vines) brought ruin in 1881 and 1882. Today the degree of prosperity in this region is second to no other in France, no matter what the nature of their cultivation. The most remarkable thing is that here the small farms are in predominance, and it is the proprietors who possess two or three cows who have been saved from ruin and enriched by the coöperative creameries.

SUMMARY OF BALANCE SHEET FOR 1912

The quantity of milk taken to the creameries was 4,049,304 litres; that taken by milkmen in the town 171,722 litres; milk by-products 6,669 litres; cream sold outside of Surgeres (which would have produced 110 kilos of butter) 2,291½ litres; butter manufactured 173,920¼ kilos; at 2.98 francs per kilo, with an average of 23.28 litres of milk per pound of butter.

Number of cows insured 2,100; number which die during the year 44; estimated value 18,320 francs; average estimated value per cow 416.36 francs; and insurance paid per head 6½ francs.

Average price paid per litre of milk 13.36 centimes (2.94 cents per qt.); average number of cows per creamery 1,660; average annual production per head 2,546 litres. Each cow produced an income of 340 francs in 1912, 354 francs in 1911, 318 francs in 1910, and 303 francs in 1909.

BALANCE SHEET FOR 1912 OF THE COÖPERATIVE CREAMERY OF
SURGERES

RECEIPTS

From the sale of:	Francs
Milk to the town.....	33,750 70
Of cream outside of Surgeres.....	371 55
By-products and cream at retail.....	1,448 20
Skim milk and residue from casein.....	62,538 10
Of butter	518,752 88
Miscellaneous revenue, entrance fees, etc.....	7,228 40
Total receipts	624,089 83

EXPENDITURES

	Francs
Amounts paid to members for their milk.....	564,845 64
Expended for new material.....	2,910 00
Repaid to five members amounts due them from 1904.....	3,181 75
Sum set aside account of general expenses.....	2,677 42

GENERAL EXPENSES

	Francs
1. Sums paid	49,221 91
2. Amounts due.....	2,014 85
	51,236 71
Total	625,320 47
Profits of the Society.....	2,765 52
	628,085 99

MEMBERS OF COMMISSION OF CONTROL

Michel Chagneau; Gustave Landereau; Marchand-Alleaud;
Theophile Beauchamp; Clement Billaud; F. Mathe; Albert
Poirier.

Manager, Baril.

President, J. Simonneau.

Bookkeeper, Esterle.

COÖPERATIVE DAIRY AND BUTTER MAKING PLANT OF GAULT
ST. DENIS EURE ET LOIRE

Statement by the manager

FOUNDATION OF THE SOCIETY

The coöperative Agricultural Society of Gault St. Denis was founded on May 5, 1910, in response to an urgent need, for up to that time milk produced in this region was sold to private parties in Paris at the ridiculously low price of 10, 9 and even 8 centimes per litre (corresponding to a price of less than 2 cents a quart).

The milk dealers, masters of the situation, established the milk stations and collected the milk, for which collection they frequently charged, in case the farms were considered too far distant from the station. Nothing could be done against such exploitation, for the power of the milk dealers rendered vain all individual protest and resistance.

In 1910, following the conference held by M. Garola, Professor from the Department of Agriculture of Eure et Loire, the milk producers of Gault Saint Denis and adjacent communities united and formed a plan for establishing a coöperative dairy plant.

Thanks to the zeal displayed by the organizers at the head of which we must cite M. Trubault Cyrus, now president of the society, they were able to raise an additional capital of 30,000 francs (\$6,000), and the society was founded with 152 members (farmers).

The new society took as its title "Societe Coöperative Agricole du Gault St. Denis," incorporated with both capital and membership variable, in conformity with the laws of July 24, 1867, August 1, 1893, and December 29, 1906. The Service for the

Amelioration of Farm Conditions operating under the Ministry of Agriculture was charged with planning the construction of the butter making plant, the installation of the machinery, etc., and the installation was made in a manner thoroughly up to date, and began operation on April 30, 1911.

OPERATION OF THE SOCIETY

The society is managed by a council composed of nine members chosen from among the stockholders and elected at the general assembly. A manager is in charge of the business operations of the coöperative society under the direction of the board of directors. He looks after the collection of the milk from the several farms, the manufacture of the butter and the business of shipping it.

Milk is collected from a radius of 12 kilometers (7.45 miles), payment being made according to the distance traveled by the collectors who receive an additional compensation proportional to the quantity of milk collected.

The milk received from each section is pasteurized and treated separately. It is not mixed.

The factory is equipped with apparatus for pasteurization of the milk, separation of the cream, and the manufacture of butter. However, it is also equipped to prepare the milk for sale directly and only such portions as are in excess of the demands for direct sale are transformed into butter.

The skim milk is used for the manufacture of casein and the residue, together with the buttermilk, is employed for fattening hogs.

The pasteurized milk or the manufactured butter are shipped each day to Paris from the station of Gault St. Denis near the creamery.

FINANCIAL ORGANIZATION

The funds necessary for the installation of the factory and the marketing provisions of the "Coöperative," proceeded from:

1. The share capital amounting to. 37,000 francs
2. A long term loan at two per cent. amounting to 60,000 francs
3. A state subsidy amounting to. 8,875 francs
4. The profits realized from operation.

The milk is sold to the "Union des Cremiers," a creamery association in Paris with which a contract has been entered into, of which the principal clause is as follows:

"The Coöperative Creamery of Gault St. Denis agrees to furnish to the Union des Cremiers its entire milk production at a price of 17 centimes per litre in summer from May 1 to October 31, and at 19½ centimes per litre during winter time, from November 1 to April 30. The milk is to be delivered f. o. b. station Paris, and shipments to be made in jars of the Union de Cremiers, and the safe return of these jars is required of the Coöperative.

"The Coöperative of Gault St. Denis is prohibited from selling its milk to wholesale or retail milk dealers at present existing in the Department de Seine and of Seine et Oise. It is also prohibited from installing a depot for the sale of creamery products either wholesale or retail."

The members are paid for their milk on the second Monday of each month according to the prices in the above mentioned contract, less an amount of 5 centimes (\$.01) per litre which is retained for the purpose of obligatory reserve and amortization of the capital invested in the factory.

ADVANTAGES OBTAINED

In 1911 during the first season that the "Coöperative du Gault St. Denis" operated, the members were paid for their milk at the average rate of 13½ centimes (\$.027) per litre, whereas outside individuals received around 11 centimes (\$.022).

In 1912 the average price reached 14 centimes, and the outsiders had no reason to complain of the operation of the Coöperative because the prices paid for their milk were raised to a price only two centimes less (average of 12 centimes [\$.024] per litre for outsiders). The whole community was benefited for the reason that the independent company had to raise their prices to the noncoöperators in order to attract sufficient milk to enable them to continue the operation of their factories.

Thanks to the Coöperative, its members have now been able to receive a remunerative price for their milk and they have become

at the same time co-proprietors in a factory which should very soon be increased in size because the quantity of milk produced is being increased and the amount treated each day keeps augmenting.

On June 15, 1913, more than 9,000 litres of milk were received daily at the creamery, and the number of members adhering to it had reached 375.

MANAGING DIRECTORATE

M. Trubault Cyrus, a Neu en Dunois; vice-presidents: M. M. Gimtrat Leon, A. Vitray en Beauce; Couppe Theotine, a pre-Saint Evroult; manager, delegate M. Biney Auguste, au Gault St. Denis; Secretary M. Claveau Georges, a Bullainville; Members, M. M.: Buron Marie, a pre-St. Evroult; Truboult Albert, a Neuvy-ou-Dunois; Laye Didier, a pre-St. Evroult; Lemoult Eugene, au Gault St. Denis.

INDRE ET LOIRE

There are seventeen coöperative creameries in the Department of Indre et Loire. Their purpose is to handle the milk and butter of the farmers adherent to them. The number of members in each coöperative society varies from 400 to 1500, according to the locality. The number of cows contributing to each butter making plant ranges from 700 to 3500, and the quantity of milk treated daily ranges from 4500 to 17,000 litres.

These associations are made up of very small farmers isolated from one another, each having an insufficient quantity of milk to be able to make butter of a good quality in an economical manner. The butter made individually does not keep well. Grouped together in a coöperative association and furnishing their milk to a well-equipped butter making plant where it is treated under excellent conditions, they obtain a first class quality of butter and are enabled to market it in a direct and economical manner.

The factory of each coöperative association has been constructed with the aid of capital, one-third of which at least has been furnished by the coöperators, the other two-thirds being advanced by the state or borrowed from private individuals. Each factory is provided with a milk weighing scales, refrigerating box, cream

separator, pasteurizing apparatus, mechanical churn, butter working apparatus, etc., all run by a steam engine which also operates an ice machine.

The construction and equipment of one of these butter making plants costs from 50,000 francs to 120,000 francs, or from \$10,000 to \$24,000.

OPERATION

The milk is collected by one who goes from farm to farm and is paid for doing it. The weight contributed by each contributor is written on a ticket kept by him and also inscribed in the register of the butter-making plant. The collection costs from one to 3 centimes ($\frac{3}{10}$ to $\frac{6}{10}$ of a cent) per litre. The skim milk is returned to the coöperators if they want it and that which is not reclaimed by them is transferred into casein.

Butter is either sold at the "Halles" in Paris, or is shipped to various merchants in the north, east or south. From $\frac{1}{2}$ of a centime, to 1 centime on the selling price per kilogram of butter is reserved to amortize the capital invested. At the end of each month the receipts and expenses are totalled and the profits distributed among the coöperators in proportion to the milk furnished by each.

RESULTS

In the Department of Indre et Loire the seventeen coöperative creameries have adhering to them 12,000 members. They handle 285,000 litres of milk per day, and produce 12,600 kilograms (27,720 pounds) of butter and about 22 litres of milk are required for a kilogram of butter, (10 litres per pound). The price per litre of milk amounts to about 12 centimes ($2\frac{4}{10}$ cents per litre), not including the skim milk.

POCKET TALLY BOOK OF MEMBERS

REGULATIONS FOR HANDLING, CONSERVATION, AND DELIVERY OF MILK

Article 1. Each member must agree to furnish the society with all the milk which he produces, with the exception of the quantity required by his own family and that of his neighbors, who may buy from him with the consent of the creamery management.

The society sells butter at retail either to its members or to outsiders, and manufactures both butter and cheese, exclusively for sale, but the purchase of calves for fattening is prohibited.

Article II. The sanitation in dairying being a condition indispensable to success, the milk must be delivered in a perfectly clean state; in order to insure this it must be strained immediately after milking.

Article III. In order to procure a proper quantity of good butter, the milk must be handled in a sanitary manner; so care should be taken, as soon as it has been strained, to put it in a clean place, free from dust and offensive odors, as cool as possible, especially in summer, so that it may be cooled rapidly. Those who have no place sufficiently cool must install a cooling tank, either of wood or stone.

Article IV. Earthenware containers are unsanitary, since they are likely to retain impurities in their pores, so that milk should only be kept in tin cans and care taken to see that they are clean and well tinned.

Article V. The mixture of hot milk with cold milk is likely to make it curdle, especially in summer, so each milking should be kept in a separate set of vessels and mixing avoided.

Article VI. All unclean, spoiled or curdled milk, or that from diseased cows will be refused, and no milk will be accepted during the first eight days after a cow freshens.

Article VII. Members must, when advised by the milk collector that he is unable to stop for it, cart the milk to such station as may be decided upon.

Article VIII. All delays in delivery of milk through the fault of a member shall subject him to a fine.

Article IX. Any attempt at bribery of the milk collector on the part of members will render them liable to fine.

Article X. All members believing themselves to be discriminated against, by a manager, director or other official of the society, may demand retribution. On the other hand, any functionary of the society who may be wronged or insulted by a member is entitled to retribution. (This retribution to take the form of a fine.)

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Article XI. Any member convicted of having attempted to injure the society by acts or words, or through interfering with its operations, shall be liable to a fine of at least 20 francs, or as much more as the Board of Managers may decide.

Article XII. All members when requested by the manager, by the board or by the inspector, must produce samples of his milk or exhibit it without touching or replacing and allow a sample to be taken, weighed and examined with a microscope, in the manner and according to the tests established by special rule.

Article XIII. Each milk collector shall be provided with a complaint register. Members who have knowledge of frauds, irregularities, lack of precision, or who wish to make other objections, are invited to write them in this register, which the milk collector must maintain at their disposition.

All complaints which do not reach the office in this way or through the inspector, shall be considered null and void, and if unintentional no fine will be imposed.

Article XIV. Any member who may have adulterated his milk either by adding water or any other material, or removing the cream, shall not only be excluded from the society but required to pay a fine ranging from 100 to 1000 francs. In case he refuses to pay he shall be prosecuted, fined and even imprisoned, and will have to pay for the publication of the legal process in the newspapers of the locality. (See Article 423 of the Penal Code, Law of March 27, 1851.)

Article XV. All infringements of the above rules shall be punished by the following fines:

Against Rules Nos. 2-13 inclusive, by a fine of from 1 to 10 francs, according to the seriousness of the offence.

SAMPLE BLANK PAGE OF THE POCKET TALLY BOOK OF THE
MEMBERS

Month of 191.....

DATE	MILK		Skim milk	DATE	MILK		Skim milk
	Morning	Evening			Morning	Evening	
1.....				Forward...			
2.....				21.....			
3.....				22.....			
4.....				23.....			
5.....				24.....			
6.....				25.....			
7.....				26.....			
8.....				27.....			
9.....				28.....			
10.....				29.....			
11.....				30.....			
12.....				31.....			
13.....				Mornings' milk...			
14.....				Nights' milk...			
15.....				Total...			
16.....							
17.....							
18.....				..... at.....			
19.....				Deduction (for skim milk).....			
20.....				Balance due.....			
Forward...							

NOTE. — Each member is provided with one of these booklets, on the outside cover of which is inscribed the route, the name of the milk collector, and the name and residence of the member. It contains blank pages providing for a record of the quantity of milk delivered, both morning and evening, and the skim milk returned for every day in the year.



FIG. 172.—HAY FIELD, HOLLAND.

WINE PRODUCTION

ABSTRACT OF THE BY-LAWS OF THE COÖPERATIVE WINE PRODUCERS' SOCIETY "GRANDE CRUS DE ST. GEORGES" (" Herault ")

NAME, PURPOSE, DURATION AND LOCATION

The society was formed from among the vineyardists of St. Georges in the form of a coöperative corporation, with capital and membership unlimited. Its purpose was to manufacture and sell principal and by-products of the vineyards belonging to the members, at wholesale. It constructed wine cellars, warehouses, pressing establishments, etc., which were necessary and acts as agent for its members in selling either for cash or on credit with references and through agreements.

The life of the society was fixed at twelve years, but provision was made for dissolution in case of necessity, and the principal office of the society was established at St. Georges.

CAPITAL AND MEMBERSHIP

The initial capital, amounting to 13,250 francs, was divided into 350 shares of 25 francs (\$5) each, bearing no interest and entitled to no dividend. Provision was made for increasing this capital by additional subscriptions from the charter members and by subscriptions by such new members as the annual meeting of stockholders might vote to admit. It might also be reduced through the retiring or exclusion of members. Every time a member retired, either voluntarily or involuntarily, he was only entitled to withdraw the amount which he had paid in, and a limit of withdrawals was placed at one-half the capital stock. No matter what the reason of the withdrawal a member could claim no part of the reserves, nor could he even withdraw without the consent of the managers, who act as the sole judges of the sufficiency of his motives.

One half the initial capital subscribed by each member had to be paid up in the beginning, the other half falling due in the month of November following the founding of the society. Each member was required to subscribe for as many shares as he furnished hectolitres of wine, divided by twenty-five.

Shares could only be transferred with the consent of the board of managers, and then only to persons fulfilling the requirements above mentioned.

Shares could not be divided. The society does not recognize more than one proprietor to each share. All members of the society agree to conform to the constitution.

ADMISSIONS, WITHDRAWALS AND EXCLUSIONS

A majority vote of the board of managers is necessary for admission and only proprietors of vineyards having their buildings, equipment and storage cellars at St. Georges, or who agree to deliver their entire crop to the society, are eligible. The decision of the board of managers is without appeal.

Whenever a member withdraws voluntarily, or is forced to withdraw for cause, the society shall reimburse him within six months, for the amount of his share of capital and the wine he has furnished.

Any losses suffered by the society are assessed against the members in the same proportion as profits would be distributed among them. In case of the death of a member the society will reimburse his heirs or assignees within the period of one year. In case of the collective retirement of more than ten members, which is always permissible, the society is not required to make settlement in less than a year.

A member who ceases to belong to the society remains beholden to his associates for his proportion of one-third of the debts, and all the obligations of the society contracted before his withdrawal, for a period of five years thereafter.

In case of the voluntary or forced retirement, decease or failure of a member, the society can not be dissolved; it continues its full rights and obligations with its other members, and in no case may a receiver be appointed.

A special agreement proposed by the board of managers and

approved by the annual meeting of stockholders shall determine the extra conditions for admission, or retirement, or exclusion, of old or new members.

MANAGEMENT OF THE SOCIETY

The society is managed by a board of managers, elected by ballot from among the members at an annual meeting. When two candidates receive the same number of votes, the older shall be elected, except when they are both of the same age; the vacancies shall be supplied in the board of managers from three substitutes, elected for this purpose at the general assembly. These substitutes fill vacancies as they occur, the one being chosen first who receives the highest vote, or in order of their age if each receives the same vote. The term of each substitute director shall expire at the date when the one whom he replaces would have finished his term. When all the substitutes shall have been promoted to fill vacancies, it is necessary to call a general meeting of the stockholders to provide others.

The members of the board of managers are elected for three years, two members retiring each year, so that each director will serve for three years, but the terms of the managers will overlap. Re-election is permissible. To be eligible to the board, a member should: (1) Hold at least four shares of stock; (2) should have made all the payments required on this stock; (3) and when not a charter member, should have been in the society for at least two years.

No one may hold a position on the board of managers or the advisory board if: (1) He is carrying on any business opposed to the interest of the society; (2) if he is under suspension; (3) or if there is employed by the society any member of his family even though the relationship be of the fourth degree.

Every year the board of managers appoints from among its members, a secretary, a subsecretary, if need be, a treasurer, by whom the operations of the credit department shall be verified, every three months at least, by two members of the board of managers and by one member of the advisory board. The advisory board has, besides, the right to make such verifications as may appear necessary at any time.

The board of managers shall meet at least twice a month, or as often as the necessity may arise. A majority must be present, and a valid excuse is necessary for absence of a member. After three consecutive failures to appear without proper excuse, the delinquent member shall be replaced by one of the substitutes. A majority of the members present must vote in favor of any matter to pass it, and the vote of the chairman will determine a tie. The minutes of the meetings shall be kept in the special register and signed by the president and secretary. Copies and extracts are delivered and signed by two members of the board of managers.

The board of managers has the most extended power of control over the affairs of the society, within the constitution. They shall provide for the maintenance and receipt of the products and by-products of the wine producers which are to be sold, in the manner which appears to them most suitable. They shall regulate the manner, the condition, prices of purchases or sale, following the internal agreements of the society which permit of the determination of the nature, quality and value, respectively, of the several kinds of wine gathered.

They shall proceed to the establishment, the operation, and the equipment and supplies of the warehouses. They may contract, countersign, compromise, abandon claims, release with or without payment, and accept all legacies or donations which may be made over to the society. They call together meetings of stockholders and submit to them the accounts. They represent the society before the law, in the nature of defendant or plaintiff. They have the exclusive management and choose the personnel. They also name, according to the conditions to be determined between the contracting parties, a commercial agent who may not be a member of the society. They make arrangements with dealers for purchases, sales and contracts which may be approved by "le Congres" that is to say, by the reunion of the board of managers and the advisory board, provided the sum involved is in excess of 1,000 francs (\$200). For these operations or purchases the preference is always, wherever convenient, to local dealers.

The board of managers may delegate a part or all of its powers to one or more agents chosen from among its members. A com-

mercial agent may receive this appointment. The acting manager is empowered to sign for the society.

The board of managers has the power to arrange the interior rules with the approval of the regular general assembly. This interior arrangement defines all rights and obligations and commercial affairs not specified in the constitution, and which may be agreed to by the society.

The available funds have to be deposited in the credit establishment chosen by the board of managers.

All officers have to serve without pay; even the weekly manager. The employees are paid salaries fixed by the managers, and no allowance can be made, or indemnity, except with the consent of the board of managers. For acts and operations of a commercial nature, the bookkeeping shall be performed according to the commercial code and the special instructions of the Ministry of Commerce.

THE ADVISORY BOARD

The advisory board is elected in the same manner as the board of managers, and has to be re-elected in its entirety every year. It is composed of five members, who are subject to the same requirements for eligibility as the members of the board of managers, except as to the number of shares which they must hold, and its duty is to supervise the acts of the managers.

The advisory board must meet once a month or as often as the needs of the society demand, and has the right, whenever it feels disposed, to look over the books and documents and examine into the operations of the society. It may, in case of emergency, call a general meeting of stockholders, and perform such other acts as the stockholders may direct.

At the end of each season the advisory board makes a report to the general meeting of the stockholders, in which a balance sheet of the accounts and the general situation of the society is set forth. It must submit this report at least two days in advance of the annual meeting.

ANNUAL MEETING

The annual meeting, regularly called, represents the interests of all the stockholders and they should all be present. They must be individually notified by letter and by advertisement in the

newspapers published in Montpellier. The order of the day, place and date must be published. The date is ordinarily the first week in September, and the first general meeting took place in 1907.

Extraordinary meetings may be called in cases of necessity at any time by the board of managers, or whenever the advisory board deems necessary. A general meeting may be considered to have a quorum when the members present represent at least one quarter of the capital stock, and when this limit is not reached another meeting must be called two weeks afterwards, and whatever action is taken at that time shall be valid, regardless of the amount of stock represented, but provided that the decisions relate only to subjects set forth in the order of the day published for the former meeting.

A list containing the name and address of all the members must be certified at the office and may be obtained on request. Each member has half as many votes as he holds shares, and a member holding only one share is allowed one vote. Voting by proxy is admissible, and election is determined by a majority vote.

A regular or extraordinary meeting is presided over by one of the members of the board of managers selected by it. Two members chosen in the meeting act as censors, and the secretary is chosen by the chairman. The order of the day is arranged by the board of managers. All propositions supported by stockholders, representing at least forty shares, must be placed upon the order of the day.

The regular general meeting considers (1) the report of the board of managers and of the advisory board concerning the condition of the society and its accounts and annual statement (balance sheet); (2) it discusses and, if there is occasion, it approves the accounts; (3) it authorizes all loans with or without mortgage, all investment of funds, and fixes the condition for such operations; (4) it elects a new advisory board for the following season; (5) it passes upon and decides all questions which are before the board, such as the suspension of members, recommended by the board, and it confers upon the board all additional powers which are considered necessary; (6) it can amend the constitution provided a notice is made in the order of the day to that

effect, and it has the right to exclude any member by a majority vote within the provisions previously cited.

Voting shall be done by raising the hand, except that concerning paragraph 4, and voting to exclude a member, in which case a secret ballot may be called for, and the meeting may appoint four poll clerks who count the votes, together with a member of the board of managers and one member of the advisory board.

A general meeting of the stockholders may modify the constitution; may prolong or dissolve the society; increase or reduce the share capital; unite or fuse the society with other societies; it has, in a word, the most extended powers. In such cases there should be present members enough to represent at least three-fourths of the capital stock.

Any modification of the constitution must be communicated to the Regional Bank (du Midi). The proceedings of the general meeting, whether regular or extraordinary, are recorded in the minutes and are inscribed in a special register and signed by the members present, or a majority of them at least. The copies or extracts of these minutes must be produced whenever necessary and shall be signed by two members of the board.

INVENTORY AND COLLECTIONS

The fiscal year begins on September 1 and there shall be an annual inventory on August 30 at which all the employees must be present to assist the board of managers, and the result is presented at the annual meeting. Any member may obtain a copy in advance.

The balance in the treasury, less deductions for general expenses, reserve fund and other expenses of the society, is distributed in proportion to the quantity and the value of the wine furnished by each member during the season. If there is a loss each member must be assessed in the same proportion. General expenses include all ordinary expenditures of the society, plus amortization on property and deduction of funds reserved for improvements.

RESERVE FUND

One-twentieth of the net profits of the season are set aside for a reserve fund to provide for unforeseen circumstances, and until it

shall reach an amount equal to one-half of the capital stock, after which the funds shall be turned into the treasury to develop the enterprise. The deductions will continue to be made from the profits, provided the reserve fund becomes depleted. At the expiration of the society and after the liquidation of its obligations, the reserve fund will be divided pro rata according to the amount each member has contributed to the business of the society during its entire operation.

DISSOLUTION AND LIQUIDATION

In case of maximum loss of 10 francs per hectolitre (\$2 per 26.42 gallons), the board of managers may call a general meeting of all the members to consider the question of dissolving the society, which if decided in the affirmative must in any case be done publicly. All members who at the time have fulfilled their obligations, that is to say, paid in the amount of their subscription and settled the losses encumbent upon them, shall be free to retire.

At the expiration of the society or in case of anticipated dissolution, the general meeting shall arrange the manner of dissolving it, and elect one or more friendly receivers. During the receivership the powers of the general meeting shall continue in vogue. All the property of the society must be turned into cash by the receivers who have the most extended powers, and the balance on hand after the deduction of the expenses of liquidation shall be distributed pro rata among the members. The receivers may, with the authorization of the general meeting, make a transfer to another society or to an individual of all the property, rights and obligations, both active and passive, of the dissolved society.

CONTROVERSIES

All disputes between members of the society shall be arbitrated if possible; otherwise they are carried to the Court of Montpellier, and all members must agree to having the trial at St. Georges. All actions must be filed wit' the office of M. le Procureur de la Republique, attached to the civil court of Montpellier.

PUBLICATIONS

Legal publication of the present constitution, wherever necessary, shall be made of these by-laws.

ESTABLISHMENT OF THE SOCIETY

The present society was not definitely founded until after the share capital was entirely subscribed and until a general meeting of all the subscribers had been called to establish the good faith of the subscriptions, to collect the amounts required, to elect the first set of officers, and finally to approve these statutes. This was on the date of July 29, 1906.

MODIFICATIONS

At an extraordinary meeting on July 27, 1908, some minor amendments were made to the constitution.

INTERNAL AGREEMENT OF THE COÖPERATIVE WINE-PRODUCERS' SOCIETY

"GRANDE CRUS DE ST. GEORGES"

Article I. Wine shall be bought by the society from all its members according to the degree of alcohol which it contains. In order to obtain a constant improvement in the quality of wine, a half a centime (\$.001) extra shall be paid for each extra tenth of a degree. Thus if wine containing eight degrees of alcohol is worth one and thirty-five hundredths per degree, that of 8.2 degrees will be worth 1.36, that of nine degrees worth 1.4, that of 9.2 degrees worth 1.41, and so on, increasing 1 centime (\$.002) for every 2 degrees.

Since the alcoholic degree of the wines of St. Georges varies between 9½ and 11 degrees, according to the season, the local society which furnishes it to the society of St. Georges, in order to favor the small proprietors, will accept wines from the grower, having a minimum of 8 degrees, but such wine being a drag upon the society, there shall be established annually an average alcoholic limit to all the wine supplied during the season by each member.

The average degree of alcohol in the wine of each member being known, there shall be retained upon the price of each hectolitre (26.42 gallons) net, the sum of 10 centimes (\$.02) per one-tenth of one degree, on all wines below the average of the harvest for the season. Thus with an average of 10 degrees, a wine testing 9½ will be docked 50 centimes (\$.10).

Article II. The degree shall be determined by the testing apparatus of the society (au Malligand), and shall be weighed at the moment of testing and also when removed.

Article III. The rating shall be made by the board of managers, who will decide whether the wines are merchantable or not. In case of protest the advisory board shall be called in to confer with the board of managers, to decide the rating, even though the wine may belong to a member of the board. An unmerchantable wine is understood to be one which is musty, acid, turned, and generally deteriorated. In such cases the proprietor shall be required to distill the wine himself, unless it be convenient for the society to perform the operation for him. The resulting liquor shall remain the property of the member, but the society may help him to sell it.

Article IV. Monthly settlement shall be made to each member in part, a payment of 1 franc (\$.20) per hectolitre (26.42 gallons) between November 1 and June 30 shall be made. The balance shall be distributed "au marc le franc," after the inventory held annually at the general meeting of the stockholders on August 31. The society may increase the amount made on account, monthly in case the members need the money, and provided they are willing to pay 4 per cent. interest on the amounts paid before they are due. Members who do not call for the amounts to which they are entitled monthly, will receive interest at 4 per cent. thereon.

Article V. Members are required to do the drawing off of their wine (racking) at the proper time, and under the supervision of the society, as well as to perform all other manipulation which may be considered necessary by the board of managers. Members will be allowed the sum of 5 centimes per hectolitre for each "racking" operation, except that made in the month of November, and in order to take advantage of this indemnity, the members must perform the "racking" at the times fixed upon by the board of managers, and in their proper turn; and they must notify the management the day before that fixed upon, for the operation, so that the board of managers may be prepared to see that it is done in the required manner. All other extra operations shall be done at the expense of the society.

Article VI. The cartage of the wine shall be done at the expense and under the care of the society. The board of managers shall contract with a truckman, preferably a member of the society from the locality.

Article VII. Until the first of January of each year, each member shall be required to make up the shrinkage in his wine, at his own expense. The members whose wine has not been removed at that date shall enjoy an indemnity for shrinkage amounting to a quarter of a litre per hectolitre, for each month up to the date when their wine finally shall be removed.

Article VIII. Whenever the society wishes to make a collection ("retiraison") from a member, he shall be advised at least forty-eight hours in advance, so as to be prepared. A trip should be made as frequently as possible for the collection of the grapes of each farmer. The board of managers shall take into account, and favor, the collections from the smallest farmers and those whose grapes are the most mature, and on the point of deterioration.

Article IX. All farmers who ship their product to the society shall have the same responsibility for delivering their entire crop as the other members. However, with previous declaration of intention, farmers who ship, may, on entering the society, retain the right to dispose of the total amount of their product, reserving the right at the end of the season to market all or a part of their wine, in any other manner which may be stipulated.

A farmer who ships may also retain any necessary quantity of wine from the shipment, upon declaration of the amount or proportion, and once established such amount can not be increased afterwards. The wine retained shall be set apart in the storage cellar of the member, in the manner agreed upon with the board of managers, and lacking such an agreement said member shall be required to deliver the entire amount stored in his cellar.

Whenever a member of the society who ships his wine to market shall have a deficiency, he shall make application to the society, which will deliver to him a uniform wine at the price which it is receiving, and without including commission.

A member reserving the right to market all of his own wines shall have no right to share in the profits of the society, until such

time as he shall again bring wine into the society. As to a member who retains a part of his harvest, he shall only have a right to a part of the profits proportionate to the quantity of wine which he has brought into the society.

Article X. All members who may wish to draw any quantity of wine from the society shall receive the same attention in delivery which is accorded to the regular agents.

Article XI. No person may be a member of the society:

1. Unless he is accepted by the board of managers.
2. Unless he is already a member of the local society for agricultural credit.
3. Unless he subscribes to as many shares as he has hectolitres of wine divided by twenty-five, and which he must agree to increase in proportion to the wine he turns in.
4. Unless he offers a guarantee in proportion to the number of hectolitres of wine which he brings into the society, the minimum limit being 10 francs per hectolitre.
5. Unless he turns into the reserve the amounts indicated by the board of managers, according to Article 10.
6. Unless he agrees to do his borrowing at the local credit society and with the sanction of the board of managers.
7. Unless he shall agree, when selling grapes, including those for table use, not to misbrand them.

Article XII. The board of managers shall retain each year and add to the reserve fund, the amount of initiation fees required of each member, at least 10 francs (\$2.00) per hectolitre (26.42 gallons) of wine furnished, and each new member shall only be entitled to one-half the sum due, after deduction of the monthly payments, for the three succeeding years. Entrance fees shall only be required after September 1, 1906.

Article XIII. Members who may be guilty of censurable conduct or who perform acts prejudicial to the society, shall be temporarily suspended by the board of managers, and such cases brought before the next regular or special meeting of the stockholders, as provided for in Article 39 of the constitution.

Article XIV. The board of managers shall appoint, each week, one of its members to supervise the business of the society. He shall act in addition to the "Berant," "Administrateur Delegee,"

or acting manager (who is chosen from outside). Either the "Gerant" or the weekly appointed manager, must be present at the time of the arrival and departure of the mails; must be in charge of the office and the storeroom, and see that the society is operated to the best interests of its members. The acting manager (Gerant) is authorized to make signatures for the society, and it is his duty to call the board of managers together for consultation, as often as circumstances may require — at least once a month.

Article XV. The meetings of the board of managers shall be presided over by the acting manager (Gerant.)

Article XVI. In order that all classes of members may be represented, two members from the advisory board must be chosen from among farmers who produce less than 100 hectolitres (2,642 gallons) of wine. This advisory board is made up in this way to aid and assist at all meetings of the board of managers, in addition to their other duties.

Article XVII. Until the board of managers shall have chosen an acting manager (Gerant), a provisional manager may be appointed to represent the society, and when the permanent acting manager is chosen, he shall be endowed with full powers to represent the society in a legal manner.

EDUCATION

THREE MONTHS' COURSE, TRAVELING SCHOOL OF DOMESTIC SCIENCE

The purpose of a traveling agricultural domestic science school is to give in a relatively short period of time such instruction to young girls as to enable them to make the best use of the several products of the farm.

Three months time has been considered necessary for the theoretical and practical studies, which the young farmers' daughters pursue, in order to become proper housekeepers.

Instruction is given to the pupils:

1. In house management, cooking, sewing, laundry-work, &c.
2. Milk testing for the determination of quality as well as the amount of butter, cream separating, butter making and cheese manufacturing.

Courses are also given for the keeping of farm accounts, domestic economy and family hygiene, and the care of animals and the best method of feeding them.

Several lessons are also devoted to the raising of plants and the use of fertilizer.

Special courses are given in poultry raising, including the operation of incubators and brooders.

LOCATING THE SCHOOLS

The professor of the departments, together with the presidents of the agricultural societies, decide upon the location where the school may be opened. They find out what buildings are available and choose the one in the most convenient locality, which will provide a class room, a kitchen, a large room for the installation of the necessary equipment, a cellar for the provision and the seasoning of cheese, and at least two private rooms for the teachers to live in. Such quarters are required to be furnished free with light and heat by the Commune.

EQUIPMENT

Equipment must be obtained and bonds voted by the general council and from state subsidies, made up as follows:

1. Centrifugal cream separators and mechanical churns and butter working apparatus.
2. All the apparatus necessary for the receiving, storage and analysis of the milk or cream, and presses and other utensils which are indispensable for the manufacture of cheese.
3. Ranges, cooking utensils and all the crockery necessary for the table at which the teachers and the pupils have to eat the midday meal.
4. All the apparatus necessary for washing and ironing the clothing worn by the pupils.
5. The furnishing includes table, chairs, blackboards, etc., of a simple character, suitable for a schoolroom.
6. A bookcase.

These furnishings are carried from one locality to another, and looked after by the teachers who are held responsible for them. The purchase of these materials are generally made by the "Prefet;" and an inventory of them is made annually.

TEACHERS

The teaching staff is appointed by the "Prefet." In order to insure unity of method the school is placed under the direction of the professor of agriculture for the departments. He or the special professor, who may be provided in some localities, is required to deliver twelve lessons bearing upon animal husbandry, elementary agricultural science, beekeeping and gardening, as well as several discussions of agricultural society organization.

The special professor sees that the pupils follow their course in a regular manner, and he has to facilitate the arrangement between the teachers and the families, and to advise with the professor of the department, pointing out anything which may be of advantage to include in the work of the school or which may be of benefit to the agricultural community.

There should be two teachers who have been prepared in special schools for this service. The principal is in charge of the management and domestic science course of the school, as well as every-

thing which concerns the practical and theoretical instruction in dairying, cheese making, cooking, etc. She is assisted by an under-teacher who aids her in the dairy course and that of cheese-making, domestic economy, etc.

The respective relationship between the principal and her assisant is determined by the departmental professor of agriculture. Finally in almost all localities it is easy to obtain the gratuitous services of a medical man, who will give a few lectures on family hygiene, as well as farm sanitation and the proper care of children.

PUPILS

The school receives pupils of fifteen years of age and under, whose parents must promise to send them regularly. The young girls must take part in the manual work as well as in the theoretical instruction. To start a school in a community fifteen subscriptions are required; if the number amounts to more than twenty-five, resort will be had to elimination by means of examination, or by excluding those who have applied last.

LENGTH OF COURSE

Each session ought to last for three months. The courses are free and attendance daily except Saturday, Sunday and holidays; Saturdays generally being days of leave. The manual operations are performed in the morning session; two hours in the afternoon are reserved for theoretical instruction. The pupils prepare the midday meal and may partake of it with the teachers; the expenses being divided among the persons who enjoy the meal. Pupils return in time to have dinner with their parents or wherever they happen to live. However, when the school building can provide accommodations, some pupils may board there.

GRADUATING EXAMINATIONS

The end of the session is preceded by examination for graduation held in the presence of a jury appointed by the "Prefet," including the school board, two general counsellors, and the presidents of the "Syndicat," which have contributed to the support of the school. A diploma is given to those pupils who have passed over 50 per cent. on the several subjects of the course.

ADVANTAGES OF THE TRAVELING SCHOOL OF DOMESTIC SCIENCE

There are in France stationary domestic science and dairy schools, but the duration of the studies is less than a year. They are attended by pupils who have shown the greatest aptitude at the traveling schools, which have the advantage of allowing the pupils to live at home without additional expense at the same time that they are gaining instruction in agriculture. The pupils continue to live with their parents, and in this way the young girls are able to help their mothers both before and after school.

The knowledge acquired in these short courses is very important, for after the age of fifteen pupils appreciate very much more the advantage of instruction and are able to get a great deal more out of the lessons.

The greater part of them have already been able to give a good account of what they have learned concerning the details of house management, dairy and cheese making operations, and one may see that the awakening of their interest in these matters will result in a valuable aid to the prosperity of our dairies. The analysis of the cows belonging to the parents of the pupils, or those of their neighbors, results in improvement in the race of the cattle, as well as in better methods in feeding the live stock, which are shown to increase the yield of milk.

The traveling school, from every viewpoint, possesses still other advantages over the school in a fixed place. It permits of giving agricultural instruction to a greater number of pupils. A fixed school would only be able to provide for fifteen or twenty pupils a year, whereas a traveling school may provide for sixty or eighty, with the result that agricultural knowledge will be diffused much more rapidly.

EMPLOYMENT OF TIME

Every day in the week, except Saturdays, Sundays and holidays, the pupils are drilled from 8 to 8:30, and from 11 to 11:30 in the morning in the regular daily farm duties. House management includes cooking, laundry work, sewing, mending, etc., and the dairy instruction includes care and analysis of milk, butter and

cheese making; agriculture includes incubator and brooder management, the care of fowls.

Part of the pupils are required to assist in the preparation of luncheon each day, but they may go home to luncheon every day in the week except one, on which they are required to eat with their comrades and teachers. Each one has to contribute to the expenses which usually amounts to about sixty centimes (12 cents) for each person.

The culinary instruction gives them an idea of how to make preserves, including fruits and vegetables.

The pupils are divided into sections and each section devotes itself to one of the subjects of instruction for at least a week, passing successively through the different courses of instruction, so that each may have a chance to learn of the practical work in every department.

In the afternoon from one-thirty to four o'clock, except leave days, the theoretical instruction is given.

One day each week the public is allowed to visit the school; and the farmers' wives of the locality, as well as of the commune, may also join in on the manual training and practical housekeeping practice, so as to learn it as well as the young girls.

COURSE OF INSTRUCTION

The several parts of the program are arranged and adapted to the general needs of all the pupils, but in all the sessions, hygiene, domestic economy, cooking, cutting and dressmaking, and laundry work, constitute the basis of the instruction.

Hygiene — Domestic Economy — Education

Elementary principles of digestion.

Alimentation: Nutritive value of principal foods.

Preparation: Alteration and preservation of food.

Provisions: Choice, purchasing and care of food.

Habitation: Sanitary arrangements, ornamentation; care of the house; ventilation, cleaning, disinfection of rooms and of clothing.

House heating and advice on the purchase and storage of fuels and the care of stoves.

Artificial lighting: Instruction and practical advice on purchasing, the care and operation of lamps, oil, etc.; and precautions to be observed.

Choice and purchase of drygoods and clothing.

Instruction in matters of the toilet, personal hygiene.

Care and management of children.

Dairy and Cheese Making

1. Description and composition of milk; alteration, adulteration, description of the milk testing apparatus for determining the richness of milk; thermometer cream meters, centrifugal separators, measuring acidity, straining, aeration, pasteurization, sterilization, cooling, weighing and measuring.

2. Establishment of a creamery, situation, water supply, etc.

3. Sale and transportation of milk.

4. Manufacture of butter, quality of milk to be supplied, separation of milk, different systems and description of each; cream and churning; working of butter; utility of by-products, skim milk, whipped cream, and whey.

5. Manufacture of cheese; milks to be used, pressure and coagulation, theoretical and practical aspects of the production of the different kinds of French and foreign cheeses.

6. Advantages of coöperation in the dairy business.

Zootechny

Ideas on anatomy and physiology which are necessary for the study of the feeding of domestic animals, composition of food stuffs, part played by nutritive elements. Digestibility of food stuffs, their nutritive value, the method of life of cattle and poultry. Secretion of milk and milking.

Ideas on the choice of a milking cow and the procedure for improving the breed of cattle; herd books, breeding associations, etc.

General hygiene of domestic animals.

Poultry Keeping

Definition and economic importance.

Choice and improvement of breeds.

Natural and artificial incubation and rearing.

Hygiene.

Feeding.

Utilization of products.

Ideas on Agriculture and Gardening

Elementary ideas of soil and climate, fertilization.

Pasture, food stuffs, intelligent production, choice of crops, conservation.

Upkeep of the garden, fruit trees, cultivation of principal vegetables, cultivation of some flowers.

Hygiene of the Family

General ideas of hygiene, part played by the woman in the application of the rules of family hygiene.

Hygiene in the house, in the kitchen, in the dining room, in the drawing room and the bedroom.

Individual hygiene, hygiene of the body, baths, shower baths, etc., mouth, hair, etc.

Hygiene of children.

The woman's part as nurse in infectious and other diseases; her relations with the doctors concerned, isolation, fumigation, different methods of fumigation.

First precautions in case of accident or poison.

Usefulness and danger of household medicines.

Sewing and Cutting Out

Principal stitches, use of the sewing machine.

Utilization of old clothes, making them over.

Lingerie; making and mending.

Knitting, crocheting and embroidering.

General ideas on cutting out, measurements.

Clothes for children, tracing of patterns, cutting and fitting.

Corsage; pattern of the sleeves.

Measurements; trying on the model.

Blouses, princess robes.

Skirts, jackets, petticoats and peignoir.

DOMESTIC SCIENCE SCHOOL AT VERZEY

One of the large champagne manufacturing companies has recently constructed a set of buildings for a wine-pressing plant at Verzey, which includes quarters for the manager, office force, and personnel who are to operate the plant. The Traveling School of Domestic Science which is just being introduced in the champagne district, and which has to occupy such quarters as may be available in each locality, has taken advantage of this new building for its first three months session at Verzey.

This building is extremely well adapted to the purpose for it has a large, light and well-constructed basement in which the laboratory apparatus has been installed. There is a full set of butter making machinery, including cream separator, milk testing apparatus, mechanical churn and butter worker, etc., and cheese making equipment. The first floor is devoted to a class room with blackboards and seating accommodation for about twenty girls. There is also a dining room on this floor, and in the second story there are sleeping accommodations for the teachers and nearly all the girls.

There are three teachers who were prepared for this work in a special school, and they explained to us the method of carrying on the course and appeared to be very well qualified. The girls were all about fifteen years old and belong to families of surrounding farmers, some of them coming from a considerable distance, and boarding at school.

TRAINING

The girls are given practical training in the care of the house, cooking, sewing, laundry work; the proper methods of feeding cattle and poultry; full instruction in dairying and cheese making; gardening; and some practical instruction in the planting and care of fruit trees, and the preserving of fruits and vegetables.

They take turns in performing the several household duties, including the preparation of their own meals and table service. They are given careful instruction in house sanitation and the nourishing value of foods and the results of this training are said to be excellent.

The course in each locality only lasts three months, after which the school moves to another point, where it stays another three months. This moving from place to place gives an opportunity for the farmers' daughters to receive instruction which they would otherwise be unable to enjoy, without having to do expensive traveling. Their mothers are also given an opportunity to keep in touch with the work in these schools, and those who live nearest continue to profit by the assistance of their daughters before and after school hours.

Almost all the girls take the keenest interest in these courses, and each one is given a diploma at the end of the three months' course, provided she has an average marking of fifty per cent. Each girl is almost certain to get married immediately after graduation.



FIG. 173.—CUSTOMHOUSE, BARCELONA, SPAIN.

INSURANCE

FEDERATION OF FARMERS' MUTUAL FIRE INSURANCE ASSOCIATION OF THE BASSES-PYRENEES

At the annual meeting on March 24, 1913, M. de Dufourcq, the president, gave an address. There were 234 subsidiary societies at the time, of which 74 were represented, making the necessary quorum.

ADDRESS OF THE PRESIDENT

GENTLEMEN.—“This is the third time that we have come together, and on each occasion the attendance has been larger, and the number of our societies has been greater; we ought to be happy because this increase is not only caused by the natural development of our association, but more particularly the result of the attention which you are giving to the management. Presidents of the local societies, you are the true foundation upon which rest the successful operation of our organization; the future of the federation is in your hands. It is because you have realized this, and thanks to your hearty coöperation that we have succeeded so well.

I am sure I interpret your sentiments in saying that we have been very fortunate and greatly honored in having among us the sympathetic and eminent “Prefet;” certainly, if he were absent from Pau at this moment we could not help but thank him just the same for the kindly interest which he never ceases to show in caring for our association. We can not be surprised at his solicitude for us for he is always generously interested in all works which may contribute to the progress and well being of the agricultural classes, and we do not forget that he is the ardent supporter of the work which we are now pursuing. His good intentions towards us are constant, and if we have been able to obtain some favor from the government it is to his active intervention that we owe them, and also, may I add, for we must do justice to everyone, to the support of our devoted representatives M. M. Barthelemy et Berard.

In your name I shall also address, to M. Hoo-Paris, whose absence we deplore today, your appreciation for the very assiduous interest which he has shown in all the operations of this society. We may see in him, with the Regional Bank of "Credit Agricole," the true protector of our finances, besides which he is our counsellor in all circumstances of difficulty.

I must also thank M. Breil, the most excellent professor of the Department of Agriculture, who has made it a rule to faithfully attend all our reunions, to which he brings on each occasion the most useful knowledge.

Finally, I wish to render homage to the intelligence and the activity of our young manager, M. Malere, whose method and regularity have resulted in a most perfect management.

I will now endeavor, gentlemen, to indicate to you as clearly as possible the moral and financial situation of our society.

The progress accomplished in the course of the last season may not have followed the alluring rapidity which it took on in the beginning; this has been due to various circumstances, such as sickness and other causes, which have prevented M. Malere and myself from continuing the establishment of new local societies. It must be well recognized that unfortunately, local initiative with few exceptions does not manifest itself spontaneously; it is almost always necessary to go and arouse interest in each locality and to force the people to take action. In this way the actions of presidents of local societies may exert a valuable influence if they will give attention to the community adjacent, for in this way their example will serve to stimulate their neighbors to imitate them. It will suffice, I think, to point out to you the possibility and the efficacy of this propaganda, and I am certain that many of you will respond to the appeal which I am making for your services in this respect. It is this interest of each one of us in working for the extension of our societies that will tend to add to its success, for the more it becomes extended the greater will be the security.

Even though the extension accomplished during our present season is far from negligible, the older societies have become stronger and the general situation of the federation more solid, still we must put forth more effort in the year to come.

At the present time we have 1,758 policies corresponding to a capital of 16,624,535 francs value of property insured; whereas in February, 1912, there were only 1,252 policies representing 11,150,000 francs insured. This 16,624,535 francs of capital insured gives us at the present time 20,332.75 francs of annual income from premiums.

We have an approximate number of applications amounting to 2,645, representing a capital insured of about 32,575,000 francs.

The society embraces, in fact, about 4,380 members, representing 48,800,000 francs of capital, insured or to be insured; whereas the membership was only 3,847, with 41,800,000 capital in February, 1912. This shows that considerable progress has been made.

Our locals have received in the course of the year numerous subsidies totaling 19,300 francs, and we have obtained for the federation another subsidy of 5,000 francs, which I shall tell you presently is due to the good offices of M. Coggia, assisted by M. M. Barthou et Berard. They may be depended upon to continue helping us and we should be extremely grateful to them.

Although we have been very lucky in this way we have been less so in others, for the season has been especially inauspicious for us from the point of view of fire losses. Eleven of our societies have had to pay losses, the total valuation of which has reached 17,042.45 francs, as may be seen from the following list: On February 29 at Aincille, 70 francs; April 25, at Lys, 32 francs; April 5 at St-Pe-sur-Nivelle, 1,250 francs; May 31, at Pontacq, 1,531.65 francs; July 22, at Hegetaubin, 65 francs; August 1, at Ogeu, 11,439.30 francs; September 17, at Asasp, 4.50 francs; September 23, at Cosledaa, 60 francs; September 17, at Caro, 100 francs; November 26, at Arthez-d'Asson, 10 francs; and January 20, 1913, at Urdes, 2,580 francs.

Although this is a very gruesome record to look at, still we may see the advantages to our organization and its superiority over other systems of mutual fire insurance. If we consider one of the local societies, as an example, the "Societe d'Ogeu," if you please, which has been the one most sorely afflicted with loss, and the claim paid to which amounted to 11,439.30 francs, we will

see what its present situation is compared to what it would have been under the mutual re-insurance system.

By applying the system of the federation its loss has been paid without causing it any sacrifice or necessity of borrowing funds from its members, for it has simply been debited with one-half the amount of its loss, that is 5,519.60 francs. Since it has a reserve of 1,004.30 francs it remains in debt for the sum of 4,715.30 francs, which it will pay off little by little with the accumulation of its annual premiums, without having to pay any interest. One-half of its premium, 320 francs, is placed to its credit annually, and with the progressive increase in the amount of its premiums and the annual funds for aid and subsidy, which it will surely obtain, it will be liberated from debt, unless it suffers further losses by fire within seven or eight years.

With the re-insurance system it would only have retained two-tenths of the risk, and would not have had to pay, it is true, but 2,287.90 francs for its part of the loss, but only being able to collect two tenths of the premiums, it would not have had in reserve but 206.60 francs. Adding the subsidy of 400 to 606.60 francs, it would, therefore, have had to borrow the difference between 2,287.90 francs and 606.60 francs, or 1,681.30 francs, in order to pay its proportion of the loss. This difference would have had to come out of the pockets of its members, and the interest on it, amounting to 64.45 francs, its part of the premium only being 128 francs, there would only have remained annually 63.55 francs with which to extinguish a debt of 1,681.30 francs requiring twenty-five years or more.

The following table shows the situation of the afflicted societies, among which only four find themselves in debt, St-Pe-sur-Nivelle, Ogeu, Pontacq and Urdes:

**FINANCIAL SITUATION OF THE SOCIETIES WHICH HAVE SUFFERED
LOSS BY FIRE SINCE FEBRUARY 15, 1912.**

Societies	Amt. of Loss Paid (Franks)	Shares of Loss Chgd Local (Franks)	Credit (Franks)	Debit Balance (Franks)	Credit Balance (Franks)
Aincille	70 00	35 00	560 00	.....	525 00
Saint-Pee (Nivelle) ..	1,250 00	625 00	517 60	107 40	.....
Lys	32 00	16 00	1,947 30	.....	1,931 30
Pontacq	1,513 70	765 85	765 00	400 85	.....
Ogeu	11,439 25	5,719 60	1,004 30	4,715 30	.....
Hagetaubin	65 00	32 50	781 55	.....	749 05
Caro	100 00	50 00	378 35	.....	328 35
Cosledaa	80 00	30 00	681 00	.....	651 00
Arthez-d'Asson	10 00	5 00	498 85	.....	493 85
Asasp	4 60	2 25	1,225 15	.....	1,222 90
Urdes	2,580 00	1,290 00	94 15	1,194 85	.....
Total	17,142 55	8,571 20			

I have still to present to you the statement of operations for the year from February 15, 1912, to February 15, 1913, showing the receipts and expenditures:

	Receipts (Franks)	Chgd. Com. Fund (Franks)	Chgd. Local Fund (Franks)
Paid-up premiums	13,056 60	6,725 65	6,528 95
Premiums due on February 15, 1913.....	9,310 05	4,654 20	5,655 85
Subsidies received	24,251 70	5,000 00	19,251 70
Interest on share, capital.....	1,562 05	147 20	1,414 25
Total receipts	48,180 40	16,329 65	31,850 75
	Expenditures (Franks)	Are charged to	
		Com. Fund (Franks)	Local Fund (Franks)
Initial expenditures	575 00	575 00	.....
General expenses	4,306 00	4,306 00	.....
Expenses for experts	140 00	140 00	.....
Losses paid	17,142 45	8,571 25	8,571 20
Interest on loans.....	116 15	116 15	.....
Total expenditures	22,279 60	13,708 40	8,571 20
Excess of receipts.....	25,900 80	2,621 25	23,279 55

The balance on hand is added to the reserve which existed on February 15, 1912, and gives a total on February 15, 1913, of 72,553.73 francs, of which 7,266.78 to account of common fund and 65,286.95 to account of local fund.

Such, gentlemen, is the financial situation of our society, which, I believe you will agree with me is fairly satisfactory, considering that we have had to pay a series of heavy losses.

I may also say that all losses were settled very amicably, with no difficulty and with perfect satisfaction to all concerned. Without in any way sacrificing the interest of the federation we have interpreted the losses in a liberal manner and fairly, and we have encountered on account of the losers by fire and the presidents of the locals too, the most evident good will and the most sincere impartiality.

One other observation should be made. You have certainly observed the amount of premiums still payable on February 15, it is far too high; all premiums ought to be paid within the limits established, and it would be well that the presidents of the locals should keep this matter in hand in the future. They ought to make their members understand that the interest of the society requires prompt payment, and that it will not do to extend the time. Should a fire loss occur to any member whose payments are in arrears, he would lose the benefit of his insurance.

I have to advise you that under the decision which you made at the last regular meeting, providing a provident fund, we have opened an account for this purpose. The common fund on February 15, 1912, of 4,692.63 francs, has had the sum of 5 per cent. or 234.65 francs deducted from it for the provident fund. This has enabled us to pay an amount of 23.50 francs to each of the two societies, d'Arthez-d'Asson et of Gabaston, which were in arrears; the provident diminished by these two amounts has become thus 187.65 francs. We ought to add to it at this time 5 per cent. of the increase in the common fund for this season, that is 131.95 francs, which will bring it up to 318.70 francs. We may in this way credit each of the societies of Pontacq, Ogeu, St. Pee-sur-Nivelle and Urdes, with a sum of 31.85 francs to diminish their deficit.

I believe, gentlemen, that I have said to you a few words on everything important, to enlighten you as to the condition of our society; and I thank you for the very patient and kindly attention with which you have listened, which shows the great interest you have in its operation, and I give place to M. Malere who will explain to you the annual balance sheet of the society.

REPORT ON AGRICULTURAL COÖPERATION IN EUROPE 925

ANNUAL BALANCE SHEET OF THE FEDERATION (FIRE INSURANCE)

FEBRUARY 15, 1913.

Liabilities	Francs	Assets	Francs
Reserves Feb. 15, 1912...	4,692 53	Office expenses	575 00
Subsidy due	5,000 00	General expenses	4,306 00
Proportion of premiums paid in	6,527 65	Interest paid to locals...	1,414 25
Proportion of premiums due	4,654 20	Interest paid on loans...	116 16
Interest collected	1,562 05	Settlement for losses.....	8,571 25
		Expert services	140 00
		Provident fund	47 00
Total	22,436 43	Total	15,169 55
Balance in favor of the Federation: 7,286.78 francs.			

LOCAL SOCIETIES

Liabilities	Francs	Assets	Francs
Proportion of premiums paid in	16,549 05	Payment of losses.....	8,571 20
Premiums due	4,655 85	Payments to be made for losses in 1911 and 1912.	523 70
Provident fund	47 00		
Subsidies with interest..	46,719 95	Total	9,094 90
Subsidies due	6,400 00		
Total	74,381 85		
Balance in favor of the locals: 65,286.95 francs.			

CAPITAL STOCK OF THE SOCIETY

72,553.73 francs, represented by:

	Francs
Premiums outstanding	50,700.00
Premiums due from locals.....	4,655.05
Premiums due account of the common funds.....	4,654.20
For account of the locals.....	6,400.00
Subsidies due: For account of common fund.....	5,000.00
Balance in treasury.....	1,143.68
Total	72,553.73

(General discussion which followed not translated.)

MUTUAL INSURANCE ASSOCIATIONS AGAINST DEATH OF ANIMALS

The farmers' "Syndicat" of Sarthe has also taken the initiative in establishing mutual live stock insurance associations for protection against the death of cattle. They are communal and

inter-communal, each covering a restricted area, so that all the people insured in any one of these societies may know one another personally, thus being in a better position to supervise the operations.

All the societies are federated and the seat of the "Federation" is in the same office with that of the "Syndicat." All the animals on a single farm are insured individually with their special mark and value. It is upon the insured value that the premium to be paid each year is calculated, and indemnity to be paid in case of accident or loss is estimated upon the same valuation. The premium is calculated at 1.04 francs per year, and payments are made every six months, each person insured paying in at the commencement of the semester seven-tenths of one per cent. of the value of the animals which he has insured. The premiums which are collected in the local societies of each commune are sent promptly to the office of the "Federation," from whence the claims for loss are attended to as they come in. These settlements are made at the rate of 70 per cent. of the insured value (a reduction being made for the hide, the meat and carcass), that is to say, upon the net loss suffered by the farmer.

There is a special account open with the federation for each local society in which there is kept: An account of the premiums paid in, the expenses, and the indemnities satisfied. The accounts of each society are balanced every six months, thus permitting the condition of each to be known, so that the "Federation" may be kept informed as to the mutual obligations existing between it and each of the subsidiary societies. A division of profits is made in proportion to the individual profits resulting from the operation of each local society. Example: One society may turn in to the association 200 francs in premiums and if the indemnity required to be paid out for losses in that same society during the semester should amount to 200 francs, it would have no right to any part of the general profits distributed for the operation of that semester. If, on the contrary, the indemnity paid out should amount to only one hundred francs, leaving a profit of one hundred francs to the "Federation," this one hundred francs would serve as the basis for calculation of the rebate to be made to that local society.

The accounts of the federated society are carried on in this way three years and if at the end of that time any local society has not been able to satisfy all of its indemnities with the premiums which it has paid in, it is held responsible for the difference, and a supplementary premium will be required of it. The amount of this supplementary premium must be sufficient to cover the excess of its losses.

We have been forced to take these precautionary measures after a long experience, and we have learned that certain societies are much more responsible than others and that some of them are a constant drag upon the "Federation." We have undertaken therefore, to offset this lagging tendency by increasing the rate of premium, so as to equalize. The future of the "Federation" is assured and its operations during the two years of its existence have given us entire satisfaction.

"LA SARTHOISE," AN ASSOCIATION FOR INSURING FARM LABORERS AGAINST ACCIDENT.

"La Sarthoise," a mutual association for insuring workmen against accident, was created by the farmers' "Syndicat" of Sarthe, for the benefit of its members.

Agricultural insurance, even though it be not obligatory, has become, nevertheless, a necessity for farmers. The small operators need a personal guarantee against accidents of which they may become victims in the course of their agricultural labors; there is also an equal need of protecting the workmen who are employed; in a word, farmers should be insured against all risks which may cause them damage, either personal or otherwise.

It is this purpose that has been undertaken by "La Sarthoise" which, by means of a premium regulated according to the number of hectares operated, guarantees to its members a daily indemnity in case of temporary injury, and of a fully paid up indemnity for permanent injury or in case of death. The society also provides for medical aid and drugs. The premiums are variable according to the nature of the farm operations and are payable in advance.

Each year the accounts of the society are balanced on December 31 and whatever profits there are, divided into two equal

parts, one going to the reserve fund, the other distributed among the members proportionately to the amount of their premiums. Since the establishment of the society on March 1, 1905, "La Sarthoise" has realized profits amounting to 30 or 40 per cent. of the paid up premiums, therefore each year the premiums of the people insured are diminished by from 15 to 20 per cent.

This institution has enjoyed a success surpassing our expectations; the application of the principles of mutuality having an excellent moral effect upon those insured, for knowing that they are interested in the profits, they take every occasion to keep down the expenses. They bring in new members and increase the strength of the society automatically, and finally in this association we have realized the following ideal: "Giving to the people insured the maximum of guarantee at the minimum cost premium." "La Sarthoise" is administered by a council made up from the officers of the "Syndicat" and of nine members chosen from among those who are insured.

SUMMARY OF RESULTS

FARMERS' MUTUAL ACCIDENT INSURANCE ASSOCIATION

Year	Number of Members	Paid up Premiums	Claims for Loss Paid (Francs)	Profits of the Society (Francs)	Area insured Hectares	Individuals Insured
1905	212	6,876	6,026	760	3,500	1,272
1906	765	27,000	18,512	8,486	16,500	4,590
1907	1,024	30,500	17,435	13,065	22,550	6,504
1908	1,347	42,100	25,480	16,620	28,000	8,082
1909	1,651	50,480	35,810	14,670	31,650	9,906
1910	1,972	59,930	36,370	23,560	36,400	11,832
1911	2,231	66,016	44,896	21,120	41,520	12,386
1912	2,480	72,045	51,493	20,552	47,160	14,880
Premium, average per farm.....					32	Francs
Premium, average per hectare.....					1½	Francs
Premium, average per person insured.....					5.30	Francs

INSURANCE FOR HORSES

In order to complete its organization in agricultural mutuality the farmers' "Syndicat" of Sarthe, established on April 1, 1909, a mutual insurance association for animals of the equienne species (horses) .

This new organization was based upon mutuality, and the premium amounts to 2½ per cent. of the insured value for work horses and 3½ per cent. for brood mares. The premiums are payable in advance and claims for loss are satisfied as soon as proven to the amount of 75 per cent. of the insured value, the carcass remaining the property of the owner.

The accounts are balanced yearly on December 31, and whatever profits result are equally divided between the reserve and the members in proportion to the premiums which each has paid in.

This organization is very simple and has given excellent results. It covers the whole "Department," but we would have preferred to have separate societies for each commune federated under it, in the same manner as the cattle insurance associations; but this has not been possible because there was not business enough in each commune to warrant it, and this is why we have just one society established at first for the whole department.

STATISTICAL SUMMARY OF OPERATION

	1910	1911	1912
Number of members insured..	69	103	136
Number of animals insured...	102	152	198
Value for which insured (fr.) .	72,650	108,900	144,200
Premiums paid in.....	1,630.30	2,766.25	3,938.85
Claims for loss paid.....	525	2,175	1,725
Rebates allowed (profits distributed) (per cent.).....	30	12	20
Reserve fund (including two subventions from the State of 3,000 frs. each.....	938.85	4,591.20	8,070.65

MUTUAL INSURANCE AGAINST BODILY ACCIDENTS TO FARMERS

By T. B. Martin, President of the Association for Re-Insurance

Object

This kind of insurance is to indemnify the members and personnel of their families for such injuries as may result also to protect the insured members against the rigorous provisions of article 1382 and the following articles of the Civil Code; that is to say to cover their responsibility in respect to their assistants, day laborers, domestics, or outsiders.

Operations

Local societies are provided, their membership being made up from among the farmers and farm operations inhabiting a single commune or a unit composed of contiguous communes; thus grouping together persons mutually acquainted, and operating under the immediate observation of their members. In this way abuses and fraud which might occur with private insurance companies are avoided.

Guarantee

The premium required to be paid in by each person insured is determined by the area of land which he represents and the character of his agricultural operations. It is fixed for cultivated fields and meadows at one franc per hectare (not to exceed 20 hectares, or 50 acres); for vineyard and hemp land at one franc 30 centimes per hectare (not to exceed 15 hectares, or 37½ acres); for market gardens and nurseries at 60 centimes per hectare (limit two hectares, five acres); and for woods and waste land at 50 centimes per hectare. No policy for less than ten francs. Provision is made for traveling insurance at rates of 4 to 7 francs, according to the locality and area included.

Indemnity

Through the payment of this annual installment each person insured enjoys the following: In case of light injuries, followed only by temporary disability, 2 francs a day is allowed for men and one franc, 25 centimes for women, from March to October, and 1.25 francs for men and 75 centimes for women from November to February inclusive. All the members of a family working the same farm are insured and two-thirds of the doctor's bills and the cost of medicine is paid by the society, the remaining third by party insured.

If the accident is serious and followed by death, permanent disability, 500 to 1,000 francs indemnity is paid according to the gravity of the injury. In cases concerning workmen, domestics or outsiders not connected with the farm, the daily indemnity is the same as for members, unless the accidents are very serious, when the indemnity may be as much as 1,000 to 4,500 francs. Large as these figures appear, there are cases so serious as to oblige the member to pay even more than above

mentioned, for accidents to his employees or to outsiders, in which case he has to pay the additional amount out of his own pocket. By paying 25 per cent. greater premium, he may enjoy what is known as insurance of the second class which safeguards him up to an unlimited amount. Through re-insurance, which is chosen by a majority of our members, with payment of 25 per cent. additional premium they are absolutely protected, regardless of the gravity of accidents.

Re-insurance

Each local insures itself for 10 per cent., retaining 10 per cent. of the premiums, turning in nine-tenths to the re-insurance society, this latter being governed by a council elected by the presidents of the local.

Our mutual accident insurance organized in 1910 is greatly appreciated by the farmers around Tours, and on December 31, 1911, there were 33 locals, the membership increasing to 40 in 1912, and the reserve fund amounting to 33,950 francs on December 31, 1912. At the present time there are 51 locals, representing a membership of about 1,500.

AGRICULTURAL CREDIT

Agricultural credit was established in the Department de la Sarthe on December 21, 1900. It was the "Syndicat" which took the initiative while the local societies were being established. There was created a credit society of the "Syndicats des Agriculteurs de la Sarthe," covering the whole department.

NOTE.—The method by which farmers in France secure money for their seasonal operations is by the establishment of small local credit associations ("caisse locale.") As these associations have but a small capital and the needs of the farmers are much greater than they can supply, stronger banks are formed, known as regional banks ("caisse regionals") which operate usually within the area of a Department (a Department corresponds to a county or state with us). These banks have more capital at their command and so are able to loan further amounts to meet, to a certain extent, the needs of the local associations by advancing upon the farmers' notes endorsed by them, but they still have not funds enough to meet all demands, and, upon the request of the Bank of France in 1897 for a renewal of its charter, the French government provided that it should set aside a certain amount of its capital to be used for agricultural loans, and a regional bank of good standing may secure the means for farmers' notes from the Bank of France by adding its own endorsement providing the note has not more than ninety days to run and has the endorsement of the local credit association and the signature of the borrower, as, under the French law, three signatures are necessary in order to secure the advance from the Bank of France. In this way the Bank of France has loaned out to the farmers some 130,000,000 francs.

The initial capital amounted to 74,000 francs, of which 64,000 francs were furnished by individuals, and 10,000 francs by the credit society, and only 29,500 francs were paid in. The capital at the end of 1912 had mounted to 563,675 francs; this considerable increase in capital being due to the contribution of societies from the several localities since the foundation of the regional banks.

The institution of "Credit Agricole" has for its base a local credit society, the territory covered by it being restricted as much as possible. The ideal condition would be to have a local in each commune so that the organization could be under the hands of its directors, and so that they might be able to perform the operations necessary without much trouble. At the present time we have established credit societies in all the principal parts of the canton and in the more important communes, in important marketing centers, etc., but we recognize that this is not enough, that the farmers are put to inconvenience and expenses, which augment the price of money. In a well organized system there ought to be in each commune; first, a "Syndicat Agricole" between the members of which there should be created a credit society, and other mutual institutions for insurance of cattle and horses, against accidents to workmen, and against fire, etc.

All these economic organizations centralized under the protection of the "Syndicat" render an important service to the farmers and insure to them the profit of such service. It is equally necessary that a credit society shall operate over a limited territory, in order that each borrower may be known personally to the management, and the extent of his reliability and his method of conducting his operations, should also be familiar to those in charge of the local.

The local societies have unlimited capital which is furnished by the farmers who form the membership. This capital is in the form of shares which ought to be of as small denomination as convenient, in order to invite modest subscription so that every borrower may be able to hold shares. In our credit societies the shares are valued at 20 francs of which one quarter or 5 francs is required to be paid in; however, the subscribers are allowed to pay in one-half or three-quarters of the amount subscribed.

The responsibility of each member is limited in proportion to the amount of his subscription.

The interest on the share capital ought to be at a little higher rate than that paid by the savings banks for it must not be forgotten that there is some risk, for if a society should make unsuccessful operations its members might have to suffer an assessment to make up the deficit, and this risk must be paid for. Our rate of interest is fixed at 4 per cent., whereas deposits in the local savings bank receive only 3 per cent. interest.

Credit societies ought to serve not only for making loans but they should be utilized by their members like savings banks; that is to say that they should serve as depositories for funds on current account. That is another reason why their territory should be limited.

In order to establish a local society, it is first necessary to unite the farmers, point out to them the advantages of agricultural credit and the profits which they may thus retain. Such a demonstration is easy and generally very well understood. In order to induce the hearers to subscribe to shares it is only necessary to secure seven charter members, the others may come in afterward. The initial capital may be very limited, and it will increase in amount as the farmers become better acquainted with the working of the society; each new member who joins will subscribe and the subscription of members will be increased in proportion to the amount they desire to borrow.

As the funds come in they are sent immediately to the regional bank for which are issued shares which insure the payment of interest to their holders. This detail is important; if the local societies should hold their funds they would be unable to meet the 4 per cent. interest rate required by the subscribers, and at the end of the year they would have a fatal deficit which their profits would be insufficient to meet. According to our manner of proceeding the local societies run absolutely no risk.

Besides having no funds at their disposition, the local societies are unable to perform any operations without the knowledge of the regional bank, therefore, in proportion as new funds come into the locals they are immediately transferred to the regional and converted into shares.

In order to provide for the expenses and the supervision which is indispensable to exercise over the locals, the Regional Bank supervises the bookkeeping of all its affiliated locals. These in time simply have "carnet d'ordre," share register, in which they fill in the amount and date and the sum and date of issue. Under these conditions the work of the locals is made very light — a very important feature — since it is not always possible to find in the country, managers whose knowledge of regular bookkeeping is adequate.

The local societies are managed by a counsel of nine or more members who are appointed each year, and, composed of a president, vice-president, secretary-treasurer, a manager (delegate), who signs documents.

REGIONAL BANK

The capital of the Regional Bank is made up of subscriptions from individuals and by the capital turned in by the local societies, the value of each share being 100 francs, one-quarter of which has to be paid in, although any other proportion or all of it may be paid in and the interest rate is 4 per cent. The Regional Bank receives in addition advances from the State in proportion to the amount of its paid up capital, and may reach a sum equal to four times such capital. These advances are made by the state free of interest for a period of five years, renewable at the end of that period. The Regional Bank is managed by a board of directors composed of nine members, three being re-elected each year. Every year it appoints its executive board composed of the president, vice-president and manager who do the signing for the society and pass upon the notes presented for discount by the locals.

INVESTMENT OF FUNDS OF THE REGIONAL BANK

This is a very delicate question. The loans are extremely irregular; there are seasons when very little business is done, when the regional may have large sums at its disposition. How to employ them — the responsible local banks may receive funds on current account, but the interest which they pay rarely exceeds $1\frac{1}{2}$ per cent., which is very little. The best plan we believe would be to convert the capital partially — one-third for

example—into reliable securities which are subject to slight fluctuations. Such securities deposited with the Bank of France would serve as a guarantee for the discount which may be made. The “complement,” that is to say, the two-thirds which remain available, is allowed to remain in operation in such a manner as to make a profit through discount operations.

RELATIONS BETWEEN THE REGIONAL BANK AND THE LOCALS

The borrowers can not have any direct relation with the regional bank. Whenever a farmer wants to make a loan he makes the request of the local society of his locality, and his application is examined by the managers of the society and if his responsibility is sufficiently well known to make him good for the loan which he desires to take out, a note is drawn up for the amount to which is added the expenses, namely, the interest, the cost of the stamped paper, and other similar expenses. This note is then signed by the borrower and his wife, and if the amount is very considerable by a guarantor acceptable to the management of the local society. The loan may also be guaranteed by a warrant taken on live-stock or harvested crops, in conformity with the law. The note thus made out, signed by the local manager, is sent for discount to the regional bank where, if accepted, it is discounted and the funds are sent to the local society to be turned over to the borrower. The borrowers pay 4 per cent. on the sums loaned. The discount at the regional bank is made at 3 per cent. thus leaving a profit of 1 per cent. to the local. These profits make up the reserve of the locals, which reserve is also increased by the rebates made each year by the regional bank, from one-quarter of the profits which it realizes and which is divided among the locals in proportion to the amounts presented for discount by each of them.

The relation between the regional bank and the locals is thus very regular, and in order to avoid the possibility of frauds which might result, for example, from a borrower addressing himself to several local societies, there is established for each regional bank a list of all subscribers to notes. From the time when a note arrives for discount at the regional bank the managing director consults the list of borrowers and assures himself in this way that there are no other loans outstanding. This

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typewritten copy of the address of welcome to the American commission delivered July 2, 1913, It was stated that only members of the "Syndicat Agricole" were eligible to membership in the local associations.

The Regional Bank was formed first and promoted the formation of the locals, and it can only advance to them four times the amount of its capital, which was subscribed principally by officers in the large champagne companies, who constitute its officers as well. The locals may advance to each member fifteen times the amount of stock held by him, but are always careful to show no partiality, always distributing their loans in accordance with the amount of money at their disposition. The Reims Regional, being in the champagne manufacturing centre, has to deal with an industrialized community. However, the loans are made only to the small landed proprietors holding vineyard lands from a half acre up.

The locals pay 3 per cent. for their money and loan on double signature at $3\frac{1}{2}$ per cent., and on single signature at 4 per cent., unlimited liability. During the crisis in the champagne district, to prevent the vineyardists from getting discouraged, a 2 per cent. rebate was made to the borrowers, reducing their interest rates to from $1\frac{1}{2}$ to 2 per cent. The loans may be renewed only when the borrower is in good standing and he is generally required to pay up one-third of his loan.

The Reims Regional was formed about thirteen years ago with a subscribed capital of 300,000 francs, at 4 per cent. interest raised by the champagne syndicate people. The Bank of France then advanced four times this, 1,200,000 francs, free of interest, giving a total capital of 1,500,000 francs.

The Regional Bank will accept deposits and pay 3 per cent., but it does not get many deposits, nor encourage them, having all the money that it can lend without.

LONG TERM LOANS

The Law of 1910 was established with a view to encourage the young men of the country to buy land and remain in the country. The loans to them were for ten or fifteen years at an interest of 2 per cent. plus amortization and secured by a first mortgage on

the property. Example: A thousand franc loan for ten years will pay a hundred francs a year amortization plus 2 per cent. each year on the balance unpaid.

LONG TIME COLLECTIVE LOANS

These are the same as the long term individual loans, except that they are used to encourage coöperative agricultural societies, and are usually for fifteen years with amortization plus 2 per cent.

The initiative of forming locals may come from the Regional, the Professor of Agriculture, or some leader among the people in the local community. This latter form of initiative is most encouraged, but owing to the previous existence of the "Syndicats Agricoles," the Regional at Reims simply got them to form locals with their membership.

The regional office at Reims consists of two rooms, 12 by 18 feet for the directors and archives, and 12 by 16 feet for an office force consisting of a manager and four clerks. The manager and his family reside in three other rooms of the same building, and he receives a salary of 1,000 francs a year. The rent of the office is 480 francs, and all the other expenses 7,520 francs, including the clerks' salaries, making a total annual operating expense of 9,000 francs, with which a yearly business amounting to 6,000,000 francs is turned over.

The saving to the people in the district covered by the Reims Regional amounted to 85,000 francs in 1912, over what the expense to them would have been had they been compelled to borrow from private sources.

MUTUAL AGRICULTURAL CREDIT SOCIETY OF CHARTRES

ESTABLISHMENT OF THE SOCIETY

The Mutual Agricultural Credit Society of Chartres (Eure-et-Loir) was founded on March 21, 1896, upon the instance of E. Egasse, who is now president, and under the auspices of the "Syndicat Agricole de Chartres."

M. Egasse was able, at the Congress of Syndicats held at Lyons in 1894, and following a report by M. Milcent, president of the

NOTE.—Group IV was made up of a sub-committee consisting of J. S. Hill, James Caldwell, C. C. Mitchell and Miss May Morison.

"Caisse de Poligny" (Jura), to appreciate the advantages which mutual agricultural credit would bring to the farmers of Eure-et-Loir. At this moment the agriculture of this section was passing through a crisis and there was pressing need of money.

In the month of May, 1895 the establishment of a mutual agricultural society conforming to the law of November 5, 1894 was established at Chartres, and a constitution was adopted. M. Egasse, vice-president of the "Syndicat," set forth in a circular letter in careful detail, to the 2,635 members of his association, the advantages of the new proposed society. In spite of the limited response in subscription (79 members only having answered the call), the local credit society of Chartres was founded.

The Agricultural Syndicat of Chartres had subscribed a sum of 20,000 francs (\$4,000), which with the private subscription amounted to an initial capital of 35,500 francs (\$7,100), on the day of the annual meeting of stockholders, at which time the credit society was established.

The general association of Chartres advanced (the share capital having been paid in) a credit of 65,000 francs (\$13,000), since raised to 100,000 francs (\$20,000) and again to 150,000 francs (\$30,000), and the new association has been able to furnish to its members the amounts which they have been entitled to.

The discount of the notes of the members has been assured by the "Societe Generale" up to 1900, the time at which the Regional Bank for Agricultural Credit of "Beauce et du Perche" commenced its operations.

OPERATION

The Mutual Agricultural Society of Chartres loans to reliable and well recommended farmers, industrious and thrifty, and who live in the cantons of Chartres and the adjacent communes, such sums as they may be in need of for the purchase of live stock, seeds, fertilizers, agricultural machinery, and in general for all the needs of their farm operations.

Requests for loans are received by the director of the association, and they must be accompanied by statement of the use for which they are required, as well as the guarantees which are

offered. Serious investigations are conducted directly to enlighten the managers (for the responsibility of the members of the association is limited), and the council, which has a meeting twice a month, as to whether it is advisable to grant the requests for loans.

The member demanding a loan gives his note which is discounted at the Regional Bank so that the party interested may enter into possession of the advance required. Each borrower must have previously subscribed to the share capital, one or more shares, and the council has fixed upon 400 francs (\$80) as the maximum amount which may be loaned to the holder of each 20 francs (\$4) subscription.

The duration of the loan varies according to the character of the operations to which the loan is applied, but the period is ordinarily three, six, or nine months.

The local credit society of Chartres also provides, according to the law of March 19, 1910, long time loans for the purpose of aiding the acquisition of and building improvements upon land, for its transformation and re-plantation, particularly for small farms. It also grants loans to the "Syndicat Agricole de Chartres" which are important in enabling it to enjoy the benefits of purchasing goods at wholesale for cash.

SERVICE RENDERED

The succeeding table will bring out more forcibly than any commentary the services rendered to agriculture in the section "Beauce-errenne," by the Agricultural Mutual Credit Society of Chartres.

Years	Membership	No. loans	Francs	Amount of loans
1896.....	414	69	47,853 55	9,570 71
1900	583	445	326,985 90	65,397 18
1906	933	997	1,736,620 85	347,324 17
1912	931	1,002	2,295,968 15	459,193 63

FINANCIAL ORGANIZATION

All the funds available are employed in the purchase of capital stock of the Regional Bank of "Beauce et du

Perche," and in discounting the notes provided the rate of the Regional Bank surpasses the rate of discount of the Bank of France.

CONCLUSION

The Mutual Agricultural Society of Chartres continues its onward march upward and renders services more appreciated by the farmers of Beauce. The borrowers on their side have the honor of fulfilling their engagements with the result that the reserve fund, which at present amounts to 50,000 francs (\$10,000), has never had to be used for the payment of bad debts, and cases of insolvency have been fortunately extremely rare.

BOARD OF MANAGEMENT

President: M. Egasse Commandeur de Merite Agricole, Chevalier de la Legion d'Honneur a Archevilliers, Cme de Chartres.

Vice-President: M. Masson, Commander de Merite Agricole, a Bossay, Cme de Villeau.

Secretary: M. Prevosteau, Eugene, a Seurs.

Members: M. M. Vinet, Senateur, a Garaucieres eu Beauce, et a Paris, No. 12 Rue Lamennais.

Benoist, Ovide, Chevalier de la Legion d'Honneur, a Gas.

Pipereau, proprietaire a Chartres.

Royneau, Chevalier de Merite Agricole, a Chartres.

Bonoist, Orphee, Agriculteur, a Theuvy-Acheres.

Flurault, Paul, Agriculteur, a Prasville.

Auditors and Accountants:

M. M. Brosseron Justin, a Chartres.

Constantin Firmin, agriculteur a St. Georges sur Eure.

Manager: M. Courtignou G. Chevalier du Merite Agricole, a Chartres. Office address of the company, No. 4 Place St. Michel, a Chartres (Eure et Loir).

POWER AND LIGHTING

FARMERS' COÖPERATIVE ELECTRICAL SOCIETY OF PROUAIS-ROSAY

This society was founded on January 16, 1912, as a coöperative corporation with capital and membership variable, and has for its objects the production of the electric power necessary for the farm operations and electric lighting of the villages of Prouais-Rosay and Beauchene and surrounding territory. These three villages inhabited by only 400 persons are purely agricultural; there being about 1,100 hectares of good land comprised in 80 farms, the average area amounting to 13 or 14 hectares (35 acres).

The village of Prouais, the largest village of the commune is situated between the other two, being 1½ kilometers from Rosay and 2½ kilometers from Beauchene.

The electric plant is situated between Prouais and Rosay at 150 meters from the latter village which has been the cradle of the enterprise.

Thanks to the good laws of the republic which at present favor agriculture, the society is occupied in improving agricultural conditions, and has applied to the Minister of Agriculture to obtain the technical services from that department which have been furnished gratuitously for the carrying out of the plans of this project, which includes the construction of a special factory, the installation of the necessary electrical generators, the transmission lines, the operating motors such as those used for operating threshing machines, grist mills, the electric meters and the installation of two electric lamps are free to each of the coöperators.

It was decided to make an expenditure of 150,000 francs (\$30,000), but this was reduced by 10 per cent. through the omission of several features which were not absolutely necessary at the beginning of the enterprise.

In order to secure the 135,000 francs (\$27,000) necessary, the society which only had an initial capital of 33,400 francs (\$6,680), formed by 25-franc (\$5) shares, in order that all might be able to subscribe to them, raised its capital to 56,000 francs (\$11,200), borrowing the difference for the coöperators at an interest rate of 4 per cent. annually.



FIG. 174.—COÖPERATIVE ELECTRIC PLANT, PROUAIS-ROSAY, FRANCE.



FIG. 175.—INTERIOR OF COÖPERATIVE ELECTRIC PLANT, PROUAIS-ROSAY, FRANCE.

1000

1000

1000

1000

1000

With the aid of the service provided for agricultural betterment, a subvention of one-tenth of the capital was obtained from the state. That is to say, 1,500 francs (\$300) could be obtained provided 150,000 francs (\$30,000) were to be expended. An additional advance was secured from the Regional Bank of Chartres on long term at 2 per cent. interest amounting to 65,000 francs (\$13,000). But this had to be repaid in 15 years by annuities of about 5,000 francs (\$1,000) each. The capital of 135,000 francs (\$27,000) was expended in the following manner:

- 2,000 francs (\$400) for acquiring the land on which the factory is built.
- 3,000 francs (\$600) required for the expenses of taking out the mortgages and the expense of forming the society.
- 30,000 francs (\$6,000) for the construction of the electric plant which contains the dynamo room; the storage battery accumulators; the crushing mill; the office; a house for lodging the operator and manager of the plant; for wells and for a public laundry.
- 100,000 francs (\$20,000) supplied with hot water during the winter.
- 10,100,000 francs (\$2,020,000) for mechanical and electrical apparatus consisting of two generator sets, provided with gas engines, type Bollincks, by the firm of Salmson of Paris, rated at 35 and 40 horsepower, and driving electric generators producing 60 amperes, and delivering 440 volts.

A battery of storage accumulators consisting of 262 cells. The transmission lines necessary to carry the electricity a distance of about 5 kilometers on the main line and at least as much further on the secondary line and for the connections to the farms of the coöperators. The installation of a pump and reinforced concrete water reservoir of 45,000 litres capacity. A grist-mill and a machine for rolling oats. Two large threshing sets, provided with electric motors. The watt meters for recording the amount of electricity used for power and lighting. The gratuitous installation of the two first lamps in home of each coöperator.

This work was begun toward the end of May and had to be pushed vigorously in order that the threshing machines might be ready to operate from August 8, and that the lighting system for the three villages might begin on October 13, at which time a festival was celebrated which will long be remembered in the locality.

The society was only established for the purpose of supplying the needs of coöperators, and it has already caused them a saving of 25 per cent. in threshing and milling. It was a great advantage to replace the manual labor by electric energy and an enormous satisfaction to enjoy the excellent lighting service, to say nothing of the profit which has resulted.

In 15 years when the society shall have paid back to the state the 65,000 francs (\$13,000) which it borrowed, the profits which it already enjoys will naturally be greatly increased. The threshing sets which are full size and turn out as much as 10 quintals of wheat to the hour (2,200 pounds equal to 37 bushels), are furnished to the coöperators at 3 francs per hour (60 cents).

The mill will roll one bag of oats for 50 centimes and will do coarse grinding such as that for cattle feed at one franc (20 cents) per hundred kilos (220 pounds), and for 30 cents it will grind barley into flour for hogs and poultry.

The price of electric light is 80 centimes (16 cents) per kilowatt, which is equivalent to a cost of 3 centimes (\$0.006) per hour for each 25 candle power lamp, or even less (remember two lights are free).

Power is paid for at the rate of 40 centimes a kilowatt with a decreasing scale for amounts in excess of 500 kilowatts annually, falling to 25 centimes (5 cents) at the limit of 2,000 kilowatts. At a cost of 40 centimes (8 cents) an electric motor will operate a root cutter at an expense of 5 centimes (1 cent) for power necessary to cut a cubic meter of beets.

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APPROXIMATE ESTIMATED EXPENSE FOR THE ANNUAL OPERATION OF THE SOCIETY

	Francs	Dollars
Interest at 4 per cent. on 56,000 francs from the coöperators	2,240	(448)
Interest at 2 per cent. and amortization in 15 years for the 65,000 francs advanced by the state	5,070	(1,014)
Salary of the manager operating the plant.	2,000	(400)
Salary of an additional mechanic for 6 months.	1,000	(200)
Salary of an accountant.	300	(60)
Cost of coal for gas producer, and oil for ma- chinery	2,300	(460)
Insurance	500	(100)
Taxes	100	(20)
Estimated cost of repairs.	1,000	(200)
Total	14,510	

ESTIMATED ANNUAL INCOME

Rental on threshing machines, 2,500 hours at 3 francs	7,500	(1,500)
Income from 800 electric lamps at 5 francs.	4,000	(800)
Income from grinding at the mill.	1,500	(300)
Income from the sale of electric power (extra).	2,000	(400)
Total	15,000	

ROSAY, *March* 18, 1913.

COOPERATION IN AGRICULTURAL PRODUCTION IN EUROPE.

Under this heading we will consider all operations of the farmer up to the time his produce reaches the local market, the railroad terminals in the city or the steamship pier in the foreign markets (from this point distribution begins).

European farmers recognize that they must be responsible for the business organization of their operations and not blame the consumer for nonefficiency at the production end. They negotiate with the railroads and see that proper rates and service are provided and with the government as to taxes and legislation.

They conserve and if possible increase soil fertility and endeavor to raise the largest yield and best quality of produce that the market demands. They know that their produce should be graded, packed, standardized and put on the market in such shape, at such times and in such quantities as will satisfy but not flood the market.

They appreciate that team work and combined coöperative effort will not only enable them to do all these things but will decrease the expense of doing them.

COÖPERATIVE PURCHASE SOCIETIES

Collective purchase and distribution, intended as it is to protect agriculturists against exaggerated prices and often against the inferior quality of goods, is an important branch of rural coöperation. In Italy it is conducted by societies of different types — technical and agricultural associations, farmers' clubs and unions, rural banks, and credit societies, to the number of 1,500. The most important group is formed by the agricultural associations, of which there are 750 whose work constantly increases with the growing use of machinery and chemical fertilizers. These associations are under the form of coöperative unlimited-liability societies whose operations cover a group of parishes. They are organized for the direct purchase, either on their own initiative or in conjunction with other societies or through their federation, of all the materials, supplies and instruments of production



A Farm Yard, Valencia

necessary and adapted to the type of agriculture prevailing in their districts, exercising in the interests of buying members a strict control over the quality of all goods.

The members as a rule then purchase from the association at market prices, any profits accruing to the association out of the transactions being distributed afterward among the members in the form of dividends or rebates in proportion to their purchases. The purchasing fund of the associations is formed by the capital, unlimited in amount and subscribed in shares of from 10 to 50 francs (\$2 to \$10), and by the accumulated reserves. Any profits remaining after meeting management expenses are divided among the shareholders, who receive as a rule 5 per cent., and the residue is assigned in varying proportions to the reserves, to propaganda in aid of rural coöperation and instruction, and to the members in proportion to their purchases.

Among the organizations for collective purchase of agricultural material in Italy the most important is the Federation of Agricultural Associations, with headquarters at Piacenza, which does business in every part of the country, and comprises more than 700 separate associations. Formed in 1892, its growth has been remarkable, as the following table shows:

In 1911 the sales reached 16,913,010 francs (\$3,382,602), in 1912, 18,483,308 francs (\$3,696,661.60), among 693 affiliated societies.

In addition to the principal work of collective purchase the federation conducts an active propaganda in aid of agricultural progress, and undertakes special studies, experiments, and inquiries. Recently it concluded an inquiry dealing with the federated societies, the results of which are given in its second year book (1911). The data refers to 420 societies. These had a total membership in the above-mentioned year of 125,000, giving an average for each society of 297 members. Piedmont held first place for the number of institutions with 62 and a membership 18,817; then followed Lombardy with 47 societies and 16,952 members; Tuscany with 39 societies and a membership of 9,112, Venetia, Emilia, Campania, Sicilia, etc. The 420 societies included in the inquiry had at the end of 1909 a share capital of 9,500,000 francs (\$1,900,000) and a reserve fund of 4,000,000

(\$800,000). With respect to these Lombardy was first in importance with \$340,000 of share capital and a reserve fund of 800,000 francs (\$160,000), followed by Venetia and Emilia. The 420 institutions in question had effected total sales to the amount of more than 80,000,000 francs (\$16,000,000) in the year of the inquiry, and it is calculated that the sales in 1910 reached 90,000,000 francs (\$18,000,000).

Among the more important purchase societies in Italy must be mentioned the Rural Coöperative Sydicate of Milan, which effects total sales in each year of over 4,000,000 francs (\$800,000); the Parma Agricultural Coöperative Association, with yearly sales to the amount of 3,800,000 francs (\$760,000); the associations of Cremona and Ravenna, with sales to 3,000,000 francs (\$600,000); the Piacenza Rural Coöperative Association, with sales of 3,800,000 francs (\$760,000); the associations of Novara and Turin, with an annual business of nearly 2,000,000 francs (\$400,000); the Rural Syndicate of Padua, with over a million, the Siena Agricultural Association, which deals with more than 2,000,000 (\$400,000) annually; and the Florence Agricultural Association, which does a business of nearly 2,000,000 francs (\$400,000). The Rural Unions of Bergamo and Faenza are also of considerable importance.

COÖPERATIVE PRODUCTION SOCIETIES

This form of coöperative activity in Italy is represented by societies for cheese, butter, and wine making, for the manufacture of alcohol from wine lees, the extraction of oil from olives, and of essences from citrus fruits, the drying and preservation of cocoons, and the preparation and sale of conserves, fruits and vegetables.

We shall deal more particularly with coöperative dairies, wine presses, and distilleries, these being the forms which have attained the highest development in Italy.

COÖPERATIVE DAIRIES

Italian coöperative dairies have a very ancient origin; in their earliest form they belong to the fourteenth or fifteenth century. They represent a spontaneous coöperative movement originating in the need for making a commercial success of milk. They

were first established, in fact, among the mountains where scattered holdings make combination indispensable in order to make any profit at all. They appeared first in the district of Friuli and extended little by little along the whole chain of the Alps into the Provinces of Como, Brescia, Sondrio, Novara and Turin, thence on the plain at Treviso, Piacenza, Reggio Emilia, and will in time occupy every district of north Italy.

They work on two different systems — the rotation system and the coöperative system, properly so-called.

In the rotation system the owners of dairy cows rent a building for use as a creamery and employ a "maker" to work all the milk which they bring to the creamery. The product is not common property; each member has the use of the creamery on a fixed day on which he carries there all his milk and works it for his own account, leaving it stored in the creamery.

This system is being substituted by the establishment of coöperative dairies in the stricter sense, under which system the members deliver their milk every day at the central building where it is made into butter and cheese. The society also undertakes the sale of the product, and the net profits gained are distributed among the members in proportion to the supplies they have furnished, a part, however, being retained to form additional working capital.

The creameries are organized as a rule in the form of coöperative societies. They number in all 1,075, distributed as follows: Venetia 426, Piedmont 282, Lombardy 258, Emilia 9, Liguria 3, central and southern Italy and the islands 10.

There are 160 coöperative dairies in the Province of Belluno, those of Agordo, which have been federated since 1888, being characteristic. Udine possesses over 200, the Osoppo Coöperative Dairy being one of the most important; Cuneo and Sondrio have about 100 in their respective territories, Bergamo 30, and the Provinces of Turin and Novara together 170. The largest enterprise of the kind in Italy is that of Soresina, in the Province of Cremona, which deals every day with nearly 40 tons of milk, makes over 30 hundredweight of butter daily, and has an annual production of cheese of the value of 3,000,000 francs (\$600,000).

About 250 creameries are affiliated to the National Union of

Coöperative Creameries, with headquarters at Piacenza, which protects their interests and promotes their extension.

According to figures furnished by the union itself, the coöperative creameries had over 14,000 members in 1912 and used annually nearly 49,000 tons of milk.

COÖPERATIVE WINE PRESSES AND DISTILLERIES

The wine presses owned and worked coöperatively in Italy are not very numerous, there being just over 150 of them either coöperative unlimited liability societies or civil societies. They are formed to deal collectively with the vintage of the members so as to obtain for the district a standard type of wine, and sell the wine produced on the most favorable terms obtainable.

In marketing the wine some societies join with the coöperative distributive societies in the large towns; others again either opening offices and selling directly to the public, or else handing over their production to a commission agent to be sold by him on their account. They obtain their working capital from the members' shares or from popular credit institutions in their locality. In the last few years there have also been formed federations of such societies among those of Piedmont, Oltre-Po Pavese, and Cimino, in the Province of Rome. The federation of Oltre-Po Pavese, which has its headquarters at Stradella, has about 2,000 small cultivators in the affiliated societies.

In Piedmont and Lombardy in particular there exist flourishing associations of this type, like the last-mentioned federation of Oltre-Po Pavese, and here and there they occur in central Italy (at Frascati, Albano, Marino, Castel Gandolfo) and in Sicily.

Coöperative distilleries are also being established in Italy, and at the present time are about thirty in number. The most important is that of Frascati, founded in 1894, which has a membership of 790 and over 200,000 francs (\$40,000) in capital. The society deals annually with an average of 640 tons of wine lees, which is the raw material of the industry. The total value of the brandy and cream of tartar produced has steadily increased, and in certain heavy vintage years exceeded 300,000 francs (\$60,000). The average dividend paid during the nineteen years of the society's existence was 5.58 francs (\$1.12) for each quintal

(220 pounds) of wine lees delivered at the distillery (about \$1 per 100 pounds).

Such success has naturally led to the establishment of other enterprises of the same kind. One after another coöperative distilleries arose at Marino, Albano, Monterotondo, Genzano, Montecompatri, Viterbo, and Vignanello, and others are now in process of formation.

COÖPERATIVE CHEMICAL FERTILIZER WORKS

Chemical fertilizer works organized coöperatively owed their inception to the high prices demanded by the manufacturers and the generally unsatisfactory conditions of private production. Fourteen are at present in operation at Bagnolo Mella (Brescia), Portogruaro (Venetia), Mantua, Lendinara and Adria (Rovigo), Piacenza, Cremona, Follonica (Grosseto), Montebelluna (Treviso), Milan (First Agricultural Coöperative Syndicate), Cerea (Verona), Novaro, Sant' Elpidio (Ascoli Piceno), and Secugnago (Lodi). Others are being established at Catania, at Benevento, and other places. They owe their foundation as a rule to the initiative of the coöperative purchasing societies.

Their constitution is that of limited liability societies with unlimited capital, and sales are usually made through local agricultural associations. Members have the right to buy fertilizer in proportion to the number of their shares, which are generally of the nominal value of 50 francs (\$10). This right is sometimes transformed into an obligation, under certain regulations, and in these cases members undertake to purchase a determined quantity of manure, from 5 to 15 quintals as a rule, equivalent roughly to 10 hundredweight and 30 hundredweight, respectively. The societies also sell to non-members.

Confidence in the societies has grown in proportion to the excellent results obtained, which appear from the following figures relating to existing works:

The works at Portogruaro, erected in 1900 on the initiative of the Friulana Agricultural Association, have an average yearly production of 350,000 quintals (roughly 1,000 quintals equal 98 tons). In eight years the society has cleared itself of a debt of 500,000 francs (\$100,000) incurred for erection and plant. Net

yearly profits reach an average of about 150,000 francs (\$30,000), which enables it to pay a dividend of 5 per cent. It has a share capital of about a million and a half francs.

The factory at Lendinara (1905) produced 70,000 quintals in the first year and 140,000 in the second, and paid dividends at 14 per cent. to purchasing members and 10 per cent. to non-purchasing members. The society has erected another plant at Adria, where it already had 350 members holding 4,000 shares, so that at the present time it has a capital of more than 300,000 francs (\$60,000) and a reserve fund of several thousand.

The works at Bagnolo Mella were the first erected in Italy (1897). The society forms part of the Bagnolo Coöperative Agricultural Association and produces annually an average of 80,000 quintals of phosphate. It has assets to the amount of 350,000 francs (\$70,000), approximately composed of shares to the extent of 20,000 francs (\$4,000), a reserve fund of 70,000 francs, (\$14,000), appreciated value of shares 200,000 francs (\$40,000), and a sinking fund of 55,000 francs (\$11,000). Of the total assets only 20,000 francs (\$4,000) is paid-up share capital; all the rest is accumulated profits of the business.

At Mantua an establishment planned in 1895 was erected in 1902. At the present time it has an output of from 120,000 to 150,000 quintal and earns a net profit of 40,000 francs (\$8,000). It has about nine hundred members and capital of its own to the amount of 300,000 francs (\$60,000).

The Piacenza establishment, which dates from 1905, produced 121,265 quintals of phosphate in 1911-12 and sold 114,848 quintals (quintal=220 pounds). The net profits were 33,000 francs (6,600) and a dividend was paid at 5 per cent. The working capital owned by the society is at present 477,684 francs (\$95,537) and the total of the years transactions reaches 850,000 francs (\$170,000). The number of members on February 28, 1913, was 1,350, who held 9,502 shares of 50 francs (\$10) each.

At Cremona the works were established chiefly on the initiative of the local agricultural association. They have an annual output of 130,000 quintals of phosphate and do business on the principle of guaranteed sales, certain of the members being under obligation to take delivery of a certain quantity of fertilizer, determined



FIG. 176.— COÖPERATIVE CREAMERY, EURE-ET-LOIR, FRANCE.



FIG. 177.— HOLLAND SILO.

by the number of shares held. The average net profit is about 30,000 francs (\$6,000); the working capital amounts to half a million.

The most recent establishment is that of Montebelluna, which was founded in 1908 and began operations in the following year. It has a capital of 500,000 francs (\$100,000), a membership of 1,300, and an annual output of 100,000 quintals.

Among the other factories, that of Novara has a yearly production of 140,000 quintals; that of Cerea, 105,000 quintals; that of Milan, 70,000 quintals; that of Lodi, in operation since 1911, a production of 130,000 quintals and a capital of a half a million francs (\$100,000), subscribed by 120 members; and that of Sant' Elpidio, erected in 1911, a yearly output of 80,000 quintals.

These figures which give a total annual production of nearly 2,000,000 quintals of phosphate, show the wonderful progress made in a short time in an entirely new branch of coöperative activity. Recently (in 1907) they formed a central association with headquarters connected with those of the Federation of Agricultural Associations of Piacenza, and already begin to feel the benefit of a closer organization.

MISCELLANEOUS COÖPERATIVE SOCIETIES FOR PRODUCTION AND SALE

In addition to the societies already referred to there are in Italy some fifteen coöperative oil factories in continuous operation to the advantage of their members both in respect to the quality of the oil extracted and to the saving in cost of production. We may note the Benacense Mutual Refinery, at Toscalano, on Lake Garda, established in 1902 with a capital of 25,000 francs (\$5,000) in 25-franc shares; the Matino Coöperative Oil Refinery, in the Province of Lecce, founded in 1906, with a capital of over 50,000 francs (\$10,000); and the Coöperative Refinery of Spoleto, in Umbria, established in 1907 with an initial capital of 47,000 francs (\$9,400) in 100-franc shares.

In North Italy again (Piedmont, Lombardy, Friuli) are to be found scores of coöperative mills and bakeries. In technical efficiency and financial success they show continuous progress and constitute one of the most valuable means of protecting agricultural laborers from pellagra.

Worth noting also is a coöperative oil-cake factory at Piacenza, which produces annually 15,000 quintals of oil cake for cattle feed; a sugar refinery at Casalmaggiore (Cremona); and a coöperative nursery garden at Canneta sull'Oglio (Mantua), formed by forty-four members, with 100 hectares of land (247 acres).

Characteristic also is the coöperative movement among tobacco growers, who are seeking means to supplant the existing commercial houses and acquire for themselves the exceedingly profitable trade.

Coöperative societies, in the strict meaning of the term, are not as numerous in Italy as in some countries. We may mention a coöperative society for the sale of grain at Bagnolo Mella (Brescia); societies for the sale of grapes for table use in the Piacenza district; fifteen societies for the sale of market-garden produce and fruit in Romagna, the Marches, Calabria and Sicily; nine societies for the drying of cocoons for the silk industry; six societies for the sale of wool and an equal number for the sale of eggs.

The Beekeepers' Federation for the production and sale of honey and wax deserves final mention. Formed in 1904 at Ancona as a coöperative unlimited-liability society, it has established branches at Macerata and at Fano, has nearly 30,000 francs (\$6,000) subscribed capital, and effects sales to the amount of 2,000,000 francs (\$400,000) yearly.

COLLECTIVE FARMS

Collective farms are a recent and characteristic form of Italian agricultural coöperation. They are associations of working agriculturists, formed for the collective hiring of the land they wish to cultivate. In most cases they obtain the land on a collective lease, as implied in their name, but in some instances make a contract to cultivate the land on some produce-sharing system, receiving as a rule half or one-third of the crop. They are always legally constituted as coöperative societies, either limited or unlimited in liability. In the province of Bergamo they are civil societies with unlimited liability.

We must distinguish between associations for separate cultivation and associations for collective cultivation.

They first confine themselves to renting the land from the proprietors and distributing it in small lots among their members; the second cultivate the land in common under central technical and administrative direction.

Separate cultivation is the more common form, but collective cultivation holds the first place for the intensity of the cultivation and the perfection of its technical methods. In the latter case each member works in turn—an interesting attempt to lessen unemployment—the work to be performed being divided among the members, who are nearly always more numerous than the enterprise requires.

Farms worked collectively are nearly always based on socialistic principles, while those worked separately are inspired by the catholic social movement, except in the case of Sicily, where socialistic and catholic farms are alike under separate cultivation.

The members are agricultural laborers in the case of farms under single cultivation; and in farms cultivated separately include day laborers, small owners, and farmers.

Except in the north of Lombardy, the members seldom live on the land they cultivate, but in villages or small towns more or less distant from the holding.

The hiring contracts are made, in the different cases, for a term of from 1 to 20 or 25 years, and the lands are leased from the State, from public corporations, or from private owners.

The necessary capital is nearly always obtained through loans—in South Italy from the special agricultural credit institutes; and in North Italy, where these do not exist, from other sources—coöperative credit banks, ordinary banks, private capitalists, buyers of agricultural produce, who advance money on the anticipated results, or the members themselves who postpone the withdrawal of money due as wages.

In addition to the cultivation of the land the societies generally conduct other supplementary business for the benefit of members, as, for instance, collective purchase and sale, the collective ownership and working of machines, coöperative dairies, cattle insurance, and agricultural credit, either as intermediate institutions for the administration of credit under special acts or as autono-

mous deposit and loan banks. In addition to their economic activity just described the societies aim at accomplishing certain educational and moral work on behalf of their members through the establishment of special schools, infant asylums, and short courses of lectures in agriculture or popular education.

From an inquiry just concluded by the National League of Coöperative Societies it appears that there are 150 societies in existence, divided into three groups, for each of which we give certain summary data:

PROVINCE.	Number of societies.	Membership.	Area cultivated.	Amount of rent payable yearly.
Sicily.....	52	16,107	<i>Hectares*</i> 46,778.28	<i>Francs†</i> 2,027,209
Emilia-Romagna.....	52	14,028	5,060.59	525,785
Lombardy.....	48	5,225	5,677.68	622,700
Totals.....	152	35,360	57,516.55	3,175,694

* 1 Hectare = 2.47 acres.

† 1 Franc = .20 cents.

They were designed in Sicily and in North Lombardy to eliminate the intermediate speculator (gabellotto or fittabile), whose action in increasing rents had already frequently led to an outcry from the farming class. In Emilia and Romagna they were formed as an attempted remedy for unemployment, not reduced in the case of these districts by emigration.

The results of their work are somewhat complex and it is difficult to estimate them fairly. In agriculture itself they have contributed to a real progress; in their educational work they have certainly stimulated the sense of responsibility among their members and given them a more exact knowledge of the cost of the factors of production in agriculture and the returns of each.

MUTUAL INSURANCE SOCIETIES

Mutual insurance societies, supplying as they do a real need of the rural population, are constantly increasing in number in Italy, especially in respect to fire insurance and the insurance of cattle. There are 1,000 of the first kind, for the most part in north Italy. In the Province of Milan alone there are 200 societies, and in Udine 100.

They are irregularly scattered over the whole country and are most numerous as a rule in districts where the land is much subdivided.

From data collected by the national committee of agricultural mutual societies from 500 societies, it appears that there are about 100,000 members in such societies insured to the amount of 100,000,000 francs (\$20,000,000). The average capital per society is about 100,000 francs. They conduct operations in a restricted area limited in general to a commune, and the majority work on the system of after assessments computed by losses. There is a tendency, however, in recent years to adopt the principle of fixed premiums, with supplementary after assessments when necessary, in proportion to the value of the animals insured. Compensation is in most cases limited to 75 per cent. of the damage or loss.

The societies are often grouped in provincial or district federations, among which that of Milan is worthy of note as the first federation to effect reinsurance in Italy, and those of Aquila, Lucca, Novara, Pinerolo, and Udine. On July 1, 1911, a national federation of cattle insurance societies with the special functions of revision and the effecting of reinsurance was founded at Rome.

Less numerous but increasing rapidly are the fire insurance societies. There are 300 of these, 200 of which are in Piedmont alone.

The total capital insured in them reaches a total of more than 400,000,000 francs (\$80,000,000), with an average per society of 500,000 francs (\$100,000). The largest society is "La Fossanese," at Fossano, in the Province of Cuneo. It has 1,000 members, with 11,000,000 francs (\$2,200,000) of property insured.

As in the case of cattle insurance societies, the fire insurance societies are also united in provincial or district federations (Asti, Turin, Alessandria, Casale Monferrato, etc.), and in a national federation with head offices in Rome, which effects reinsurance for the affiliated societies.

There are in Italy five societies for mutual insurance against agricultural accidents, at Vercelli, Milan, Turin, Florence, and

Bologna, and others are being founded. The most important is that of Vercelli, founded in 1902, among the agricultural workers of the district.

This society insures its members against death or permanent disablement, either total or partial, and in some cases pays compensation for temporary disablement. Insurance is extended to all agricultural workers, casual as well as regular. Premiums are fixed at the rate of 5 francs (\$1) for each 1,000 francs (\$200) of insurance, calculated in respect not to the number of laborers employed but to the area cultivated. On November 10, 1911, the society had 654 members, with a total cultivated area insured of 90,000 hectares (222,300 acres), giving employment to 78,000 laborers.

The accident insurance societies have their own federation in connection with the national agricultural mutual committee, also in Rome, a committee which encourages and directs the rural mutual insurance movement and contributes to its success.

Insurance against hail is undertaken in Italy by limited liability and mutual societies such as the Mutual Aid Society of Milan, the Society La Prudenza el'Eguaglianza, also of Milan, the Agricultural Association of the Provinces, in Rome, and the Interprovincial Agricultural Union of Cremona. At Vercelli, also, there is the coöperative agricultural limited liability society La Vercellese, founded in 1892, which, beginning operations in the Province of Novara, in Lomellina, and the vicinity of Vigevano, in 1904 extended its operations to the whole of Italy. The property insured in it amounted to 8,199,700 francs (\$1,639,940) in 1910, the premiums paid to 835,115 francs (\$167,023), and the indemnities paid to 477,357 francs (\$95,471).

THE NATIONAL LEAGUE OF COÖPERATIVE SOCIETIES

Formed in 1886 with headquarters in Milan, this league comprises some 3,000 coöperative societies for distribution and production dispersed throughout every Province of Italy. It promotes the formation of coöperative institutions by perfecting their statutes and encouraging the adoption of suitable technical and administrative regulations, protects the interests of the affiliated societies, and labors to secure for each type of association

the legislation best adapted to its particular needs. The necessary funds are provided by the contributions of the societies, calculated in proportion to the number of their members, and ranging from 15 to 300 franc. The league has received recognition in laws dealing with emigration, contracts to coöperative productive societies and associations of labor, and the office of labor. It is represented on various consultative bodies (superior council of labor, thrift council, emigration council, provincial and central commissions for the supervision of coöperative productive societies and societies of labor).

It conducts its propaganda through national or local congresses, public lectures, and its official journal, *La Coöperazione Italiana*, and by means of numerous legal, economic, and statistical publications. In the course of 26 years it has convoked 18 congresses, to which the country has responded faithfully.

The league has just established at its own headquarters the national office of traveling lectureships, teaching thrift and coöperation, founded in Italy in recent years. This office aims at the organization and was of a vast propaganda for the diffusion of the various forms of coöperation and thrift.

Examples of comparative business organizations among the farmers of other European countries:

DENMARK

For brevity, only a few of the striking facts in Danish coöperation will be cited, one of the first of which is that the natural conditions are rather unfavorable to agriculture in Denmark. The average size of the farms is about 80 acres and the majority of the agricultural operations are at present carried on under the coöperative system. The large farms have held out against this, but are being brought into the movement by the fact that their products, such as butter, manufactured in individual plants on large estates, can not compete in quality with that produced by the coöperative plants of the small farmers, who have from two to twenty cows each and who have been able by combination to put themselves on even a more favorable footing than the owners of large estates.

Fifteen per cent. of the farms belong to large land holders and 85 per cent. to the small farmers.

The branches of agriculture which are organized in a coöperative way are those producing butter, eggs, bacon and beef, although the last has not been so successful. The coöperative societies have obtained excellent results through their purchasing departments for seed, fertilizers, agricultural machinery, etc., although they have found great difficulty in their attempts to get American manufacturers to deal directly with them. In one of the inquiries they said they had frequently written to our manufacturers, but had received no replies.

Thirty years ago the Danes began the transformation of the character of their agriculture from that of grain cultivation to the production of meat, lard, butter and eggs, at the same time forming their coöperative societies and looking for a market for their product in England. In 1909 they had 1,157 creameries, 34 abattoirs, 15 purchasing societies, 270 horse breeding societies, 1,260 cattle breeding societies, 253 hog breeding societies, 102 sheep breeding societies and 519 societies to control sanitary conditions. The coöperative creameries were the first to start, quickly followed by the abattoirs and later by sugar factories, fruit growing establishments, etc. Thirty years ago Denmark produced only 22,000,000 pounds of butter a year and had only 900,000 milch cows. At present it produces 252,000,000 pounds of butter and has 1,282,000 cows. The home consumption of butter is 55,000,000 pounds, so that nearly 200,000,000 pounds are exported. About two-thirds of the coöperative creameries were established between 1886 and 1890, and in 1909 there were 1,157 coöperative creameries, 238 working in common and 90 privately owned and operated, the total number of farms producing milk being 182,300, of which 86 $\frac{1}{10}$ per cent. were leading with the coöperative creameries, 6 $\frac{9}{10}$ with the large individual farm creameries worked in common with their smaller neighbors and 7 per cent. with the private creameries, and the milk of 83 per cent. of the total number of cows in the country was sent to the coöperative societies. Some of the largest farms have as many as 1,000 acres area and the smallest $1\frac{1}{4}$ acres. It is above all the big farmers who hold aloof from coöperation. Forty per cent. of those of from 300 to 600 acres deal with the private creameries on the property and those of more than 600 acres handle 60 per cent. of their

milk in this way, whereas more than 80 per cent. of the milk of the smaller farms is sent to the coöperative creameries.

In 1909 the total milk production in Denmark amounted to 8,140,000,000 pounds, of which 5,764,000,000, (2,254,000,000 quarts) went to the coöperative creameries.

PRICES AND PAYMENT

The skimmed milk and buttermilk is returned to the producers and valued at \$4,480,000 ($2/10$ of a cent per quart of milk). "As a rule accounts are kept in such a way that after deducting the cost of manufacture the members are paid the full price of the whole milk which they furnish, and they then pay for whatever skimmed milk and buttermilk they take back at fixed prices, often a little below the true value. Sometimes the settlements are made weekly and rarely less often than once a month. As a rule the sums deducted for cost of manufacture are considerable, as a principal sum is saved in the course of a year which is divided among the members of the coöperative creamery societies in proportion to the amount of whole milk which has been furnished, amounting to a dividend of 15 per cent. in 1909."

For the 2,254,000,000 quarts of milk manufactured into butter in 1909 the farmers received a direct payment of \$63,560,000 or at the rate of $2 \frac{82}{100}$ cents per quart, and at the end of the year the 15 per cent. dividend, amounting to $42/100$ of a cent per quart, brought the average price up to $3\frac{1}{4}$ cents. The cost of manufacture was \$6,440,000, representing about $28/100$ of a cent per quart of milk.

Inasmuch as the price paid for milk was dependent upon the selling price of the butter manufactured, the total receipts for butter during the year amounted to \$70,000,000 less about ten million dollars for cheese and by products, or a total of \$60,500,000, and as about one pound of butter was obtained for each ten quarts of milk, making about two hundred and twenty-five million pounds of butter, the rate received for it at the creamery averaged 26.7 cents a pound.

The waste in manufacture is nearly 2 per cent. The ordinary sized coöperative creamery handles from one to three million quarts of milk a year and $7/10$ of the creameries fall within this

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability.

2. The second part outlines the various methods and tools used to collect and analyze data. It mentions the use of surveys, interviews, and statistical software to ensure the reliability of the findings.

3. The third part presents the results of the study, showing a clear trend of improvement over time. The data indicates that the implemented measures have been effective in achieving the desired outcomes.

4. The fourth part discusses the challenges encountered during the research process. It highlights the need for continuous communication and collaboration among all stakeholders involved.

5. The final part concludes the document by summarizing the key findings and providing recommendations for future research. It suggests that further studies should focus on long-term impacts and scalability of the current findings.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the team.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete each task.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress regularly to ensure that the project is on track.

5. The final step is to evaluate the results of the project. This involves assessing the outcomes against the objectives and goals and identifying any areas for improvement or further action.

among the medium sized farms and the participation of the larger farmers is almost as great as that of the small ones."

In 1909 the producers were paid for hogs and cattle slaughtered and furnished the total sum of \$23,324,000 to which must be added the supplementary amount paid in dividends at the end of the year, amounting to \$2,408,000. The hogs alone brought \$24,920,000, the average price per hog being \$18.20. In 26 of the abattoirs the members are collectively responsible, but the collective responsibility is generally limited to a given sum.

COÖPERATIVE SOCIETIES FOR PURCHASE AND SALE

Owing to the transformation of agricultural operations from grain raising to dairying, a considerable portion of grain has to be purchased, and that, together with the seeds and chemical fertilizer, have given rise to the purchasing societies which in 1909 bought grain for feeding purposes to the value of \$12,908,000, bran \$1,988,000, oil cake \$16,016,000, seed \$2,352,000 and chemical fertilizers \$2,716,000, or a total of \$36,160,000.

There were about 15 coöperative federations doing a business of \$32,000,000 and the membership has risen from 20,000 in 1900 to 70,000 in 1909.

PRODUCTION AND EXPORTATION OF EGGS DURING THE LAST TWENTY YEARS

This industry has become very important in Denmark and the income from egg export in 1909 exceeded \$7,000,000 and the value of poultry amounted to about \$3,500,000. The membership in these societies is divided between the various sizes of farms, but comes in the greatest measure from the average size holdings. The Danish coöperative society for egg export, which was established in 1895, is the greatest federated association in this industry.

SOCIETIES FOR THE BREEDING AND CONTROL OF CATTLE

These have enjoyed considerable subsidies from the government and have aimed at improving the race of the cattle. The greatest membership in these associations is from the medium sized properties. The effect of the control societies has been to

very greatly increase the milk production of the cows, and the breeding societies as well as the control societies are united in federations which aim to bring about a fixed plan based upon uniform price and they concern themselves with the common interests of the societies in their dealings with the public and with the authorities.

GERMANY

Two coöperative dairies, one at Molkerie with 350 members and another at Rhinebach of about the same size, both of which are affiliated with a central association of Bonne, were visited by the Commission. The plant at Molkerei is supplied with milk from 1,200 cows, the price paid being $2\frac{1}{2}$ cents per quart delivered at the creamery where the milk is separated and the skim milk after being pasteurized is returned to the farmers, who make cheese and also feed it to calves and hogs. The average daily supply ranges from 4,000 to 5,000 quarts and the richness amounts to an average of $3\frac{1}{2}$ per cent. butter fat. An outbreak of foot and mouth disease had reduced the daily quantity of milk from 8,000 quarts formerly received; that which is not accepted being fed to animals on the farm.

The milk is gathered by ten teams which start at 6 A. M. daily from ten different villages, the furthest of which is about a mile distant from the creamery. The output of butter, amounting to 4,000 to 5,000 pounds, is sold entirely to summer hotels in Bonne, and the demand for it is so great that butter from other dairies has to be secured. The price is 36 cents a pound delivered. Whipped cream is also sold to these hotels and the sanitary conditions are very carefully maintained. The butter plants have their own refrigerating plant and the milk handling rooms are lined with white tile. At the end of the season of 1912, a 13 per cent. dividend was paid to the members of the Molkerei dairy. Estimating the value of the skim milk at $\frac{1}{4}$ of a cent per quart, and adding this to the $2\frac{1}{2}$ cents paid directly, the farmers receive $2\frac{3}{4}$ cents, and adding to this the 13 per cent. dividend, amounting to $3\frac{7}{100}$ of a cent, the total net receipts of the farmer amounts to $3\frac{13}{100}$ cents per quart delivered at the creamery.

COÖPERATIVE DAIRY AT STRUCKHAUSEN

This is one of the oldest coöperative undertakings of the kind in Germany and was established in 1884 by five farmers in the Duchy of Oldenburg, and on the first day that it opened 1,250 quarts of milk were delivered, representing the output of 21 farms. At the present time 800 farmers are delivering an average of 36,000 quarts daily, amounting to 8,070,000 quarts per year.

The greater part of milk is made into butter, the average percent of butter fat being 3 13/100. It requires 12 quarts of milk to a pound of butter. The price paid for the milk averages about 21½ cents per quart and the actual cost of making the butter is about 31 cents per pound and the selling price 34 cents. The farmers get about 33 cents for a pound of butter and also have the skimmed milk returned to them which they feed to calves and hogs. The total amount paid to the farmers for their milk for 1912 amounted to about \$209,000 or an average of \$260 each, and the total cost of manufacturing it into butter amounted to \$22,282 which is about 11 per cent. This expense of manufacture was distributed as follows:

Salaries and wages	\$4,237
President and inspectors.....	200
Travelling expenses	170
Postage, printing, telephone and stationary.....	1,000
Insurance against fire, accident and loss by burglary..	187
Interest, taxes, boiler testing and sinking fund on machinery	750
Tubs, boxes, paper, etc.....	1,250
Freight on butter.....	825
Coal, oil, salt, soap, etc.....	1,925
Other freight and haulage.....	10,250
Making copies	961
Maintenance of buildings and machinery.....	325
Value of stock.....	200
Total	\$22,282

The total sales for the year amounted to \$218,014 of which there was in the cash account a debit of \$184,226 and a credit of \$182,048; in the bank account a debit of \$298,155 and a credit of \$305,281. The building begun in 1911 for the convenience of the business was completed in 1912 and \$1,750 must be added to the building account. New apparatus and tools were put in to the value of \$6,250 which must also be added.

SWITZERLAND

Switzerland has a multitude of coöperative associations for the furtherance of agricultural production consisting of agricultural societies partly educational and partly economic, breeding associations for cattle, horses, sheep, cows and hogs, fruit growers, wine and cider makers' associations, dairies, coöperative grist mills, land improvement and irrigation societies and associations of shepherds, market gardeners and agricultural insurance associations. There are also coöperative credit societies.

The most important coöperative societies are those for the production of cheese and butter and the handling of milk, of which there are about 3,000, with a total membership of 80,000 farmers.

These Swiss dairy associations may be divided into 3 types: (1) Those which own no property, but are simply organizations for the purpose of selling their milk on the best possible terms; (2) associations which own their buildings and equipment but rent them to a cheese maker or butter maker to whom they sell their milk collectively; (3) societies which own their factories and equipment, but hire expert operators at regular wages, the manager of which must not only be able to handle the manufacturing, but also the sales end of the business.

The milk selling associations deal with both condensed milk factories and cheese factories, and there is at present a struggle going on between the dairymen and the combination of milk dealers, with the principal condensed milk companies of Switzerland. The Swiss dairy farmers have adopted the plan of building coöperative cheese factories in the neighborhood of the condenseries and within the past year have formed their own export associations which sell cheese to wholesale dealers in many countries. For example, they receive orders by cable from wholesale

dealers in New York, and have succeeded in some cases in raising the prices which they have received for their milk to over 4 cents per quart. (See result of the same procedure in Ireland.)

A typical dairy consisting of from 16 to 21 milking cows, averages 3,635 quarts per cow annually, with $3\frac{3}{4}$ per cent. butter fat. The cows are fed in summer on green forage and in winter they are given beside the best quality of dry forage, a pound of corn, $\frac{1}{2}$ pound of beans and $1\frac{1}{2}$ of beet pulp, the grain being crushed and mixed with the pulp. In another dairy the average production per cow was $11\frac{1}{3}$ quarts per day with 4 per cent. butter fat in the milk, the cows being the Swiss breed.

The production of milk is calculated by dividing the total production of the year by the total number of days during which milk was being given by 365, the measurement of the milk given by each cow being taken twice a month.

Some of the Swiss cattle sell at very high prices, young cows sometimes bringing from \$160 to \$600 apiece and bulls sometimes selling for \$1,000 apiece. Of course the average prices of the cows rarely exceed \$100.

AUSTRIA

The Vienna Dairy, which was organized in 1880 on a coöperative basis, is of much interest because it is engaged in collecting and distributing raw milk in the capital. A very complete plant was built in 1901 consisting of a building about 100 feet wide and 350 feet long, which enables 102 delivery wagons to stand side by side in one line as they bring the milk from the railroad stations.

DESCRIPTION OF THE DAIRY

On the right hand side of the main entrance there is a two-story office building containing living apartments for the director and several of the other officials and adjoining it is the one-story dairy building to which is attached the roofed loading platform. The broad corrugated tin roof of the platform can be cooled in hot weather by artificial sprinkling apparatus. The machinery building stands in the rear and adjoining it there are some three-story buildings, in the left wing of which are the stables which accommodate 212 horses. Above the stables are sleeping, smoking and

dressings rooms for the unmarried employees, and also a restaurant where the officials and workmen can find good meals at reasonable prices, furnished by the management. The permanently employed personnel including officials and salesgirls of the depots number from 650 to 660 and there are nearly as many more who are only employed in the morning hours for delivery of milk. The Vienna dairy handles about 30,000,000 quarts of milk annually and the selling price in bottles to the consumer is 8 cents a quart. The producers receive a price represented by the $4\frac{2}{3}$ cents per quart value f. o. b. Vienna minus the charges for transportation and collection, the average price to the farmers being $3\frac{1}{2}$ cents a quart.

The milk is handled in a very sanitary manner and bottled in this establishment from which it is sent out to 159 selling depots distributed throughout the city, 146 of which are kept open the year around and some of them are situated beyond the city limits. From these branch depots the milk is distributed to the consumers by 210 push carts. The milk on arrival at the plant is pasteurized, strained and cooled. About 90,000 quarts are put in glass bottles and distributed as whole milk and the surplus is separated and part of the cream sold directly and the rest worked up into butter and the skimmed milk made into cheese and pot cheese. The plant makes a specialty of milk for babies.

In the hot summer months part of the excess milk or that which seems unlikely to keep, is turned over to a private firm, Eisler & Co., who produce condensed milk which they sell mostly in foreign countries.

The members of the coöperative associations are paid for their milk by volume or weight, taking into account the quantity of butter fat, the percentage of which has increased from $3\frac{1}{4}$ per cent. to $3\frac{85}{100}$ per cent. in the last 14 years since this element has been considered in payment. A special laboratory in the Vienna dairy examined over 46,000 samples of milk in the season of 1911-1912 to determine the percentage of butter fat, its specific gravity and the impurities, and many bacteriological examinations were also made. The net value of the milk as it arrives at the railroad stations in the city of Vienna in bulk is $4\frac{2}{3}$ cents per quart on the average.



Grain Farm — Belgium

As the agricultural conditions and coöperative enterprises of the two adjoining countries, Italy and Germany, have been described in detail; those of Austria-Hungary, being similar, will not be further referred to.

HOLLAND

Although agriculture is the greatest industry of the Netherlands, it was in a backward and low state of progress up to 25 years ago, at which time the government began taking an interest in improving it, and in 1890 organized horticultural schools, and lectures were given to the farmers in agriculture, horticulture and dairying, and experiment stations were also established. Coöperative societies for buying and selling have grown up all over the country, among which the coöperative creameries are perhaps the most important, and at present farming is in a prosperous condition. The annual production for Holland being valued at \$240,000,000. The average farms are from 15 to 30 acres and a great deal of the land is left in pasturage. Of the cultivated area about 46½ per cent. is operated by the owners and 53½ per cent. by tenants. Tenancy is increasing. About ⅛ of the area in Holland is devoted to grain raising, rye, oats, barley and wheat. In the dairying regions they average about one animal to every ten acres except in the pasturage sections where 20 acres per animal is allowed. Of the 145,000,000 pounds of butter produced annually only about 30 per cent. of it is made at the farms, the other 70 per cent. being produced by the butter factories, whereas of the 182,000,000 pounds of cheese that are made, nearly one-half is made on the individual farms. On account of the similarity of conditions between the Netherlands, France and Denmark, no further reference will be made to them here.

BELGIUM

There were in Belgium in 1910 556 coöperative dairies having 57,000 members and owning 163,000 cows. The value of their dairy products was \$8,000,000, most of the sales being made directly to the consumer, only the surplus being sold in Brussels at auction.

The average cost of one of their creameries accommodating the milk from 300 cows is \$2,000. The average butter production per cow is 352 pounds a year.

The farmers deliver their own milk to the creameries and take back the skimmed milk.

RUSSIA

Considerable benefit has been brought to the milk producers in Siberia through coöperation. In 1894 the milk was being bought from farmers by speculators who made it into butter and only paid $1\frac{1}{4}$ cents per quart. In 1902 the Department of Finance collaborating with the Department of Agriculture helped in furnishing the means for starting coöperative dairy societies, and in 1907, 270 of these associations, with a total membership of 52,000 farmers, were grouped together into a federation. The territory covered was that of the two Siberian provinces of Tobolsk and Tomsk. A report of the operations of this federation, published on January 1, 1910, showed: 44 factories at Kourgan producing 4,593,000 pounds of butter sold at \$918,460; 46 factories in Tcheliabansk producing 1,069,920 pounds sold at \$208,208 and 18 factories at Petropavlovsk producing 1,198,440 pounds of butter sold at \$223,820, making a total of 108 factories producing 6,861,360 pounds of butter selling at the average price of 20 cents per pound and bringing in an income of \$1,350,488 to the farmers. The factory charges $5\frac{1}{3}$ cents per pound of butter manufactured to the members, bringing the selling price of the butter up to $25\frac{1}{3}$ cents per pound.

Estimating the quantity of milk on the basis of ten quarts required for each pound of butter produced, it would seem that the farmers are getting about 2 cents per quart for the whole milk and receiving back the skimmed milk, which should be valued at at least $\frac{1}{4}$ of a cent per quart. This selling price is almost double what they were getting from the speculators before they combined into coöperative societies.

The average farm owns five milch cows, although there are a considerable number of larger properties where the milk is sent to butter factories owned privately, the proportion in this territory being about 6 coöperative factories to 14 privately owned factories.

ENGLAND

The American Commission visited the Eastern Counties Farmers' Coöperative Association at Ipswich, England. The agricultural conditions in this district of England are very similar to those in the State of New York, the size of the farms ranging from 200 acres to several thousand acres, and the principal market for the produce of this section being London.

On the estate of Lord Raleigh, which is divided up into parcels of about 70 acres each and which are rented to tenant farmers at \$7.50 per acre per year and where the price of the land is about \$187 per acre, the principal industry is dairying and the type of cattle a mixture of Shorthorn and Holstein. The average milk production is 3,000 quarts per cow a year, and the maximum 4,800 quarts. This milk is handled in a very sanitary manner, pasteurized and cooled and shipped directly to London and nets the producer nearly 4 cents a quart. The milk which is sold directly to consumers in Ipswich brings 4 cents a quart in summer and 6 cents in winter delivered. The heaviest cows are Shorthorns, weighing 1,120 pounds apiece and valued at \$100 each and the lightest are the red polled Suffolk, weighing 840 pounds and valued at \$75 each.

Although there is only about 20 inches of rainfall in this part of England, it is so well distributed and there is so much comparatively level pasture land, that cattle are allowed out in the field a large part of the year. The milch cows are fed a ration of hay, feed consisting of bean meal and oil cake, half and half, and such roots as turnips, beets and cabbages. Some butter is made which sells at 25 cents a pound, but it is found more profitable to sell the milk direct at from 4 to 6 cents locally or 4 cents f. o. b. London.

The principal crops raised are wheat, oats, barley, beans and peas, and the maximum yield for wheat is 68 bushels per acre, the average 40 bushels, with two tons of straw, per acre. Oats yield 32 bushels and potatoes 260 bushels per acre, and wheat sells at \$1.08 per bushel and corn at 75 cents.

Farm labor costs \$20 per month without board and some work is done by task, as for instance, the hoeing and weeding of peas at \$2.75 per acre. The workmen live in cottages consisting of

two rooms down stairs and three bedrooms upstairs, and having $\frac{1}{8}$ of an acre of land for a garden. The landlord charges \$20 per year rent.

The average weight of the hogs which are raised is 300 pounds, selling at 11 $\frac{6}{10}$ live weight and 15 $\frac{6}{10}$ per pound dressed. Calves which are sold for veal average \$10 apiece, and when an average cow produces one calf per year and 3,500 quarts of milk at 4 cents per quart the income amounts to \$150.

Hogs are fed on a mixture of Indian corn, worth 75 cents per bushel, Indian grain, peas at 94 cents per bushel, and barley at 90 cents. The meal formed by this mixture is sold at \$36 per ton. The English beans at \$1.08 and grain peas at 94 cents which are used half and half for cattle feed, make a meal which is sold at \$35 per ton. Horse feed consisting of 50 per cent. oats, 35 per cent. Indian corn, 10 per cent. English beans and 5 per cent. meal sells at \$37 per ton. All these commodities are handled through the farmers' coöperative store, which does one-third of all the business in meal and one-tenth of that in whole grain for the Ipswich district. It also handles grass seed which it grows and guarantees for freedom from weeds, clover selling from \$8 to \$16 per bushel, trefoil and red clover from \$4 to \$9, alsac and white clover from \$19 to \$25 and alfalfa at \$14 per bushel. Much of this seed is raised on land owned by the coöperative societies, the yield per acre being 8 bushels for red clover seed and 24 bushels for trefoil seed. There is a machinery department in this coöperative store which sells mowing machines at from \$50 to \$60 each, reapers at \$80 to \$100, binders at \$110 to \$125. They handle both British and American makes of machinery, the latter selling at a lower price. For instance the British Massey-Harris binder sells for \$130, whereas the corresponding American binder sells for \$115, English wheel rakes at \$60, American wheel rakes at \$30, English 8-foot corn drills at \$175, corresponding American corn drills \$100.

The egg collecting station at Ipswich grades and sells eggs. Those not more than 4 days old are called first class and sell at 31 cents in summer and 62 cents in winter in the London market and the producers get 25 cents and 56 cents respectively. Eggs not more than 7 days old are called seconds and sell at 23 cents

in summer, and those more than 7 days old are called thirds and sell at 21 cents in summer.

As an example of the rental value and selling price of land, a 200-acre farm at Ipswich rents at \$5 per acre and sells at from \$125 to \$150 per acre. A 472-acre farm which rented at \$6.25 per acre sold recently at \$125 per acre. The taxes on this land amount to \$9 per \$1,000 assessed valuation. Another 500-acre farm with livestock and improvements sold for \$21,380 which amounts to \$427 per acre. The land was really worth \$125 per acre, the crops and the livestock together \$240 per acre and the farm equipment and machinery \$62 per acre. We are apt to think in America that land values are very high in England, but these examples prove that they are not much higher than our own lands situated an equal distance from our greatest market. The high value of livestock and equipment is striking and shows the responsibility the tenants have to bear.

IRELAND

THE WEXFORD MEAT SUPPLY AND BACON FACTORY

The Wexford meat supply and bacon factory includes an abattoir fitted up and superintended by an Irishman who has spent several years in the employ of the P. Cudahy & Co., in the Chicago stock yards.

The factory is fitted up in a thoroughly modern manner, with cold storage rooms and all departments necessary for taking care of the by-products. Adjacent to the plant are stalls for housing cattle intended for slaughter. The cattle are brought in from the rural districts in the afternoon before slaughter, the next morning are driven into the individual stalls and watered but not fed. Two hundred and fifty head of cattle are slaughtered each week, together with from 500 to 600 hogs and as many sheep.

The cattle dress 57 to 60 per cent. of the live weight, the sheep 55 per cent. and the hogs 75 to 80 per cent. Pigs when dressed average 160 pounds and sell at 16 cents a pound, sheep dressed 106 pounds and sell at 13 cents. Cattle dressed will average about 700 pounds and bring 13 cents, making the value of the meat \$91, while the hide is worth \$11.25, the head \$1, the horns \$30 a ton and the extra parts \$7.75 per head, a total of about \$111, which a single head of cattle will bring.

The best meat slaughtered by the concern is shipped to London, while the inferior cuts which are much in demand in the local market, are sold through the local retail departments of the town and country trade, at the following prices:

	Cents per pound
Round steak	0 16
Sirloin	18
Roast	17
Hock and neck	10 and 11

The meat for the local Irish trade is shipped in baskets and delivered largely by rail. The freight rate is 9 pence (18 cents) per hundredweight for a distance of 30 miles or less in the county. The railroads return the baskets free.

Owing to the ruling against shipping live cattle into England when the foot and mouth disease was epidemic in Ireland some time ago, this slaughter house became the only medium through which Irish meat could reach the London market. This was because the meat was dressed and because the disease was not prevalent in Wexford county. Had the facilities for slaughtering and shipping been large enough the whole normal export of meat from Ireland might have been controlled by the society.

GLENMORE COÖPERATIVE CREAMERY SOCIETY

The Glenmore Coöperative Creamery Society is a society with 154 members. Before the establishment of this creamery the butter produced in the community was practically unsaleable, but the value of butter to the farmer has practically increased from 30 to 100 per cent. For example, before the creamery was established each cow produced only £4 in value, or \$19.44; now the average production of each cow is valued at \$43.74. The farmers not only produce better butter, but they get better prices.

The farmers are paid for their milk on the twelfth day of each month. After the milk has been separated at the creamery, the farmers carry the skim milk back to their farms. Each coöperative farmer keeps from 1 to 35 cows. The total supply of milk is derived from 1,500 cows.

The creamery was built on money secured on over draft from the New Ross branch of the Munster and Lister Bank. Each share of stock is valued at \$4.86, on which \$1.25 was paid in at the time of organization. The plant is operated by a manager and four employees. The manager and the head dairymaid are employed from outside of the community. The working expenses for 1912 amounted to about eight per cent. of the turnover.

Butter is shipped in 56 pound boxes to regular wholesale customers in London at 32 cents a pound. The local trade pays only 25 cents a pound.

The manager of this society is a member of the Creamery Managers' Association, whose headquarters are at Cork. The association furnished regular reports on prices in the principal markets in England and Ireland.

Six members from the Glenmore Coöperative Creamery Society combined and bought a \$3,000 threshing outfit with money borrowed at $3\frac{3}{4}$ per cent. interest from the local bank on overdraft, each of them assuming an equal share. It was considered advisable not to admit more members in the ownership of this outfit for the reason that there was always a striving among the members to see who should have his grain threshed first. Seven, it was thought, was about the largest number that could agree.

After the grain of the members is all threshed the machine is rented to non-members. An engineer at 10 cents an hour and two helpers at 5 cents an hour each, go with the machine. The man whose grain is being threshed furnishes the coal, which is usually worth \$6 a ton, board for the men, and pays \$1.50 an hour for the outfit. The outfit is able to thresh as much as 100 bushels per hour, but counting the setting up, taking down and removing of the machine, it averages only about 50 bushels an hour for oats and about 44 for barley. This is equivalent to the yield on one acre for each of these grains.

The cost of operation to the owners of the machine is 10 cents an hour for the mechanic and 10 cents an hour for the two helpers, making a total cost of 20 cents an hour, or a profit of \$1.20 an hour, out of which cost of repairs and interest on the investment have to come.

This outfit is operated for three months in the threshing sea-

son. After that the wheels of the machine are taken off and rollers are substituted so that it may be used for road building.

CUSHINSTOWN AGRICULTURAL CREDIT SOCIETY

The Cushinstown Agricultural Credit Society, county Waterford, was established in 1904 with 39 charter members without capital. It received a loan of \$243 (£50) from the Department of Agriculture in Dublin, raised \$243 itself by holding concerts, and was then granted \$972 more by the Irish Agricultural Organization Society, Plunkett House. With this \$1,458 a town hall was built by the society. There are now 23 such halls in Waterford County. The loan of \$243 from the Department of Agriculture was at the rate of 3 per cent. interest. Needing more money the society secured it on overdraft at 4 per cent. interest from a local joint-stock bank up to the limit of \$1,944 (£400) on the security of a joint indorsement of the local directors.

Because of the exacting rules of the Department of Agriculture, which would not permit members of the same family to borrow and to act as security, the society decided to free itself of the Department of Agriculture by repaying the \$243 borrowed. This was done by borrowing the money from the local joint-stock bank at an additional 1 per cent. interest, which they were willing to pay for liberty.

At the present time the membership of the society is 91 members, who borrow on an average of \$75 to \$100 for as long as 10 months at 5 per cent. interest, for the purchase of cattle, machinery, fertilizers, seed and feed, secured by a note carrying two signatures in addition to that of the borrower. Of the 91 members, however, only about 25 or 30 actually borrow from the society. The total amount loaned by the society in 1912 amounted to about \$1,500.

Only three members were depositors with the society, each in about equal amount, up to a maximum of about \$230. At the time of the visit of the sub-committee, only \$130 was found on deposit. On this amount 4 per cent. interest is paid. Money is loaned by the society only for productive purposes. The average durations of the loans is six to seven months.

The directors of this society are all farmers. The accounts are audited once a year, at an expense of \$2.62, by a public accountant. No salaries are paid and the operating expenses consequently are negligible. The local branch of the Bank of Ireland at New Ross, which transacts the business of the society, is very friendly. Interest is computed on monthly balances made up every three months. For example the directors sign for a total overdraft up to about \$2,000, but pay interest only on the amount actually used. Interest is not paid, however, until the amount is returned to the bank.

Before the Cushinstown Agricultural Credit Association was organized farmers in the district were charged a much higher rate of interest, even as high as 14 per cent, by the joint stock banks, which demanded interest payment in advance.

The farm products in this section in which the society operates are milk, beef, cattle, sheep, brewery barley, grain, butter and eggs. The best fed cattle are sold directly to the coöperative meat supply and bacon factory at Wexford, mentioned above. The poorer grades of cattle often bring better prices when sold to private buyers.

BANSHA COÖPERATIVE AGRICULTURAL AND DAIRY SOCIETY

Statement by Mr. R. D. Barry, Manager

I understand that the object of your visit is to ascertain how the coöperative creamery was started in this district and how it is operated. The Creamery of the Bansha Coöperative Agricultural and Dairy Society was started with a capital of \$1,458 (£300) in 1902, with shares of \$4.86 (£1) each, on which \$1 was paid. The buildings and machinery we now have cost \$24,300. For the first year our turnover was \$23,293.98, while the turnover for the past year was \$121,888.80. The profits paid the balance due on the shares four years ago, since which time the shareholders have been paid 5 per cent. interest in cash.

For the first year in which the creamery was operated only seven months, the net profits of the society were only \$471.42. In 1903 the profits were \$865.08. The object of the society is not to make big profits, but to give the farmers as much as possible for their milk. The business, of course, belongs to the

farmers, who own the plant. The society has wiped out its original loan, and if we were closed down in the morning the only liability against the society would be the \$1,458 paid in by the shareholders.

Q. How many members did the society have to start with? A. Eighty-seven.

Q. How many members has the society at the present time? A. One hundred and one.

Q. How many cows were represented in the membership when you started? A. Eight hundred.

Q. How many cows are now represented? A. We have not increased the number of cows very much, although we have increased the number of shareholders. At first we had suppliers who were not shareholders. We now have about 900 cows.

Q. What is the difference between the prices paid for butter before the society was organized and those which the farmers receive now? A. The farmer now receive about one-third more for their milk than formerly. Before the creamery was started they only received about $1\frac{1}{4}$ cents per quart for their milk; now they get on an average of 2 cents during the three winter months; and for the whole of last year an average price of 2.4 cents per quart was paid.

Q. Have you any way of knowing whether the work of the society has changed the price of butter to the consumer or not? A. Yes; the consumer is paying a little more for his butter now than he was fifteen years ago. Then, however, the whole profit went to the manufacturers.

Q. Have you any regulations which require the members to patronize the dairy? A. Yes; some years ago it was found necessary to establish a rule binding the men to sell their milk only to the creamery for a number of years.

Q. Was there any opposition to the enforcement of that rule? A. We have not been called on to enforce it.

Q. How could the rule be enforced? A. The penalty would consist of a deduction of twenty-five cents a day per cow for the number of cows owned by the defaulting member. The fine is recoverable by law, either as a deduction from the amount due the farmer from the creamery or by direct attachment. The



Fig. 178.—HARVESTING RICE, VALENCIA, SPAIN.

advantages of the coöperative system, however, have been recognized by the farmers, and there is not the slightest danger of them leaving the coöperative dairy except for private purposes.

Q. What portion of your milk is now obtained from shareholders? A. About 95 per cent. of our milk is now supplied by the shareholders, but we will take milk from anyone, provided it is in proper condition.

Q. What is meant by proper condition? A. Milk that is perfectly sweet so that it will stand a temperature of 80 degrees to 100 degrees F.

Q. Do you test the cows to see that they are healthy? A. We have testing associations where the quality of the milk is tested. It must be delivered in clean and sweet condition and in thoroughly clean vessels.

Q. If you found a cow was unhealthy, would you stop the milk? A. Yes. We have a doctor who would notify us, and upon notice from him we stop the milk.

Q. To whom is the doctor responsible? A. He is employed by and reports to the creamery. We do not have cattle diseases in this district and consequently do not demand an examination of the cows.

Q. Have you any system of encouraging the farmers to secure a larger percentage of butter fat in their milk? A. Yes; the cow testing associations which have been started in Ireland during the last few years, undertake such instruction. Heretofore a number of farmers have been keeping cows which do not pay for their own feed. The average price of milk per cow for 45 weeks should be \$48.60. In addition to this the separate milk is returned free by the creamery to the farmers.

Q. Do you make butter at your branch establishments? A. We separate the cream at the branches, but only manufacture the butter at the central plant. By concentrating the manufacture we find that the expenses are reduced.

Q. At what distance are the branch stations from the central plant? A. From three to six miles. They bring in the cream each day by team.

Q. Do you sterilize the milk? A. Only when necessary. We

do not pasteurize the milk during the summer months, but do in the winter.

Q. Explain this, for usually the reverse is the practice. A. The cream is only workable three times a week in the winter, and root feeding in winter makes the milk impure.

Q. Do you pasteurize your cream? A. We pasteurize the whole milk.

Q. Where do you sell your product? A. All over the United Kingdom. We endeavor to sell the product to the large grocers, but sometimes we have to sell to wholesalers.

Q. Have you any customers among the coöperative stores in England? A. Yes.

Q. Do you mark the butter with a special brand? A. Yes.

Q. Is there any national control over trademarks? A. Not applicable to butter. There is a national trademark applicable to all manufactured goods, but its use is not compulsory. The name of the creamery is usually printed on the butter.

Q. Do all of the dairymen raise pigs? A. Not all, but quite a number of them do.

Q. Are they taking more interest in the raising of pigs? A. I can not say that the interest in pig raising is increasing. We have no pig organizations in this region.

Q. Do the local farmers raise poultry? A. Yes, most of them keep poultry.

Q. Are there any poultry associations here? A. No; not in this immediate section.

Q. Does the Bansa Society make any effort to raise pigs or poultry? A. We endeavor to induce the farmers to raise as many pigs as possible in order to consume the skim milk they receive back from the creamery. Some years ago the people in this neighborhood stopped keeping pigs owing to the low prices they received for them, and a large quantity of the skim milk was left at the creamery. We then started to manufacture casein, but the returns have been very poor.

Q. What is the relative amount of milk which is received in June and in December? A. In the summer months we get close to 12,000 quarts of milk per day. In the winter we seldom get

more than 1,200 quarts per day, and sometimes can not get that. If we could secure double the quantity we now receive, we could pay more for it because our operating expenses would be reduced by half in proportion to the increased returns.

Q. Are any efforts being made to encourage the breeding of distinct dairy cattle? A. The Department of Agriculture has taken up that question. During the past year and a half a number of such associations have been started in Ireland. They are also giving premiums for the best milking breeds of cattle, and I believe in a very short time the breed of milking cattle will be greatly improved throughout the country.

Q. What breed of cattle predominates among your members and other patrons? A. They have no particular breed. One man may have one kind and another man another. The Dexter, however, is the best breed we have here.

Q. Do you distribute a profit of 5 per cent. on the share capital of this society? A. Yes.

Q. How do you distribute the profits above this? A. We first apply them to the debts of the society, and after they are paid the difference is divided among the farmers who are shareholders.

Q. Do milk suppliers who are not shareholders share in the profits? A. No. The principle of control is one man, one vote.

Q. Where did the society get the balance of the original capital over and above the \$1,458 share capital? A. We borrowed it from the National Bank at Tipperary, on the security of a joint note signed by the ten members of the committee. The members elected ten members as a managing committee, who gave their personal note for \$3,402 (£700). They had no protection. They took the chance in order to start the business. The rule now is that every shareholder is liable for the full amount of shares. Each member has to take guaranty shares to secure the shares, but he does not have to pay anything except a nominal amount on the guaranty shares unless the business fails. We pay 4 per cent. for the loan from the bank. At first we started in a small way. The buildings were small and only cost \$6,318. As we grew we added to them according to our profits. We did not have to pay for the machinery in full the

first year, for we got it on credit. The capital now amounts to \$2,427. The shares are now worth practically ten times their face value. Five per cent. is figured on the original capital. We only pay a dividend on the amount actually paid in on the shares.

Q. What is the number of shares a committeeman is allowed to hold? A. There is no limit.

Q. Have you any shareholders who are not milk suppliers? A. Just a few.

Q. What is the number of shares an ordinary member would hold? A. About 15 shares. The general rule is one share per cow.

Q. Does the area in which you operate overlap with any other coöperative creamery? A. We have another dairy within 100 yards of us, but two coöperative creameries are never erected under $2\frac{1}{2}$ miles of each other. In some districts the distance apart is from 5 to 6 miles.

Q. What amount of business does the other local dairy handle? A. The private dairy here does a business of about 800 quarts of milk per day. Before we started it handled all of the business in the neighborhood.

Q. Are there any silos in the district? A. No.

Q. What are the cows fed in the winter? A. The principal roots are turnips and mangel, with which a mixture of crushed oats, wheat and Bombay cotton cake. Globe turnips are fed in November, Swede turnips in December and mangels in March.



Provincial Dance in Southern France

FRANCE

THE MULE RAISING INDUSTRY IN THE POITOU DISTRICT OF WESTERN FRANCE

The raising of mules in the Poitou district, according to M. Auroyalt, dates back to a remote period when in the tenth century an Italian prelate named Leon sent to William IV, Count of Poitou, a magnificent mule. The authors who have dealt with this question differ somewhat as to the exact period when the mule raising industry attained the importance which it has acquired in this western region of France. If one may not go back far in the authentic history of mule raising in Poitou, its evolution is easy to follow after the opening of the eighteenth century. Since this period one may state that this business has always been prosperous in spite of the difficulties that were thrown in its way to stem its tide and to leave a sufficient place for the raising of cavalry horses for the army. Thus in 1717 the administration of Haras issued prohibitive laws regulating the raising of mules. The industry has overcome in the struggles against the defenders of thoroughbred and mixed breed horses, for the mule raisers are as stubborn as their product and finished by disarming their adversaries, who were forced to recognize with good grace that our hybrid is indispensable to the mountain country, especially where the climate is hot and humid.

Causes of the Superiority of the Mules of Poitou

The breeding stock and the means and the methods of raising are the factors which have enabled us to obtain powerful animals which have no competitors and have given to Poitou the monopoly in the raising of mules for heavy haulage.

Territory

The Poitevine mule industry has been lessened during the last fifty years by the great numbers which have been sold. In fact the territory occupied in raising the mules is limited to the immediate surroundings of Melle, Niort and to the country to the

south and southwest of Parthenay, in the Deux-Sevres to the southeast of the surroundings of Fontenay-le-comte, in Vendee; and in the several cantons of Vienne and to a small territory north of Charente.

It is around this zone in an extended territory, above all in the east and south, in Vienne and the two Provinces of Charente, where one has obtained small sized mules that the production has decreased because the breeding stock and the conditions of raising were less favorable than in the present centre of the mule raising district (Melle, Niort and Fontenay-le-Comte).

The animal of 16 $\frac{1}{4}$ hands or more, capable of heavy and long haulage in the southern regions of France and adapted to cultivating in single harness in the vineyards is the type which we maintain in the Poitou region. In fact, we have seen a part of our product disappear in the West Indies, in South America, etc. Because of the way in which the mule raisers in the new world have followed our example their product is being shipped even to England for use on the tramways.

With the male breeding stock of Poitou they have obtained in the United States large mules with small legs which are incapable of rendering the service that our mules can give, and they are called Spanish mules; less tall than ours and better adapted to work in a broken country than the long legged animals. They range from 14-2 to 15-1 hands in height.

Male Breeding Stock, Called "Baudet" in Poitou

These jacks, known under the name of Baudet, are the strongest breed, ranging from 13-3 to 14-4 hands and sometimes as tall as 15 hands and stocky in proportion. The head is very large, the ears long and well open, the barrel is thick and the chest broad and deep. The long-bodied animals have the reputation of producing strong mules.

The body is well developed, the limbs large, and the skin is covered with long and woolly hair, often curly, ranging from a fawn color to a bay brown or black. The hoof is large and open.

These animals are too well and too favorably known in foreign countries for us to describe them further. They have been imported by England, the United States and many of the South

American countries, also in Tunis, and recently the Swiss government has bought four of these breeding jacks. The excellence of these animals is due, in a great part, to the consanguinity which has brought their strength up to the highest degree. They are in fact all raised among the breeders of the vicinity of Melle, and especially in the surroundings of Niort.

The number of large females which are kept for reproduction is limited, though there are just as many females as males born, but the latter only are of the highest value. The bad habit of not taking good care of the female interferes somewhat with the success of breeding. As the production is limited the prices of the best jacks has kept high, ranging from \$600 to \$1,200 each. In some exceptional cases they have been sold for prices as high as \$1,600 to \$2,000.

Stallion Bred Mules

These animals have a height ranging from 15-3 to 16-1 hands high, and one of the stallions approved in 1902 by the government measured 17-3 hands.

Those having a short head and ears, long body, long and oblique shoulders and compact body are chosen. The mares used for mule breeding should have a large body, powerful legs and wide hoofs; in a word, very broad stocky mares built on large lines are desirable for raising strong mules. The raisers of Poitou have obtained by selection this special type very well adapted to breeding from jacks.

Contrary to certain prejudices, we believe that if we had a lack of good mares in Poitou, which by the way is not the case, in importing animals of strong stature analagous to our own we would be able to obtain powerful mules.

The Means and Methods of Raising

The means and methods favorable to raising in our industry supplement the action of our breeders, in that the region where the raising is done is composed in part of alluvial soil and of marsh land and above all of jurassic plains; breeding does not extend far into the granite region of Bocage or Gatine; the

fertility of the well-cultivated soil and the damp climate which we enjoy gives an excellent quality of pasturage and very nutritious forage.

This humidity of the soil and atmosphere in the Vendéen meadows contributes to the development of abundant hair and mane as well as to large hoofs. Great value is attached to these secondary characteristics which are so easy to develop or suppress; they are considered in our country as favorable indications. Animals with heavy mane and thick hair produce the best mules. The colts which are born in the spring enjoy a profusion of milk, sometimes too great a quantity, and later they eat artificial forage, for the young mules up to the age of 15 to 18 months are allowed out in the field in good weather to pasture on alfalfa and clover. At this age they are harnessed up with an old mare to do light work, generally two young mules and a mare, and when they have had enough of this training they are worked three mules together, from 18 months to 21½ years. This exercise is beneficial in developing their muscles and their appetite and with good treatment during this training we develop the animals which have the best possible dispositions. At about the age of three years the mules are prepared for sale, cared for in darkened stables and fed on good hay, meal and grain. At the end of several months of this careful feeding they have become fat enough to enable them to live on the reserve and stand the fatigue of an export journey into Italy or Spain where they are resold by dealers after having been exhibited at the fairs in the south of France. This exhibition period lasts for two weeks and sometimes longer. Finally we see that the power mule of Poitou, this giant among its kind is largely a result of the character of the stallion or jack, the predominating factor in our industry, together with the solid and stocky well-built and well-bred mares.

The Importance of the Mule Raising Business

More than 20,000 mares are annually bred to jacks and about 7,000 female donkeys to stallions in the center of the production at Poitou. The young mules or "getons" are bought at

the farm or at the fairs in the surroundings of Melle and Niort from November to January, and later in the season by dealers who transport when to the provinces of Esore, Drome and Vaucluse in the southeastern part of France. The majority of these animals which are sent to the southeast are geldings, and the males which seem as though they were going to develop into the finest specimens are retained for breeding purposes from which are obtained the large specimens of mules that one may see at the wharves at Marseilles. These male mule colts have been selling during the last years at as high prices as the young mules, the average being \$80 to \$100 apiece, and it is not unusual to see them sell as high as \$160. Generally the strongest young female mules remain in the country. Half of the mule breeding mares to the number of ten or twelve thousand have colts every year. The mules raised in Poitou are sold at the age of $3\frac{1}{2}$ to $4\frac{1}{2}$ years, the strongest ones to work in the vineyards of Aude, Herault, Card and the Eastern Pyrenean provinces. The price is \$240 to \$280 each, and they sometimes bring as much as \$360. They average 15-2 to 16-1 hands high, but they keep on growing until they are 5 or 6 years old, often attaining a height of 16-3 hands.

In the season of 1901-1902 the bad vineyard season resulted in a bad season for selling mules, so that the price went down from \$40 to \$50 each, and the requirements in the south of France amounted to nothing, so that a new market was developed in Italy and Spain, where our good mules destined for Longuedoc were sold.

The animals measuring at least 15-1 are sold in Spain at from \$160 to \$220, and Algeria and the colonial armies are offering an increased market for them.

An ardent admirer of mules, M. Ganon, military veterinary, has so well set forth the qualities of these valuable collaborators in the mountain countries, that the army has adopted them in a large measure.

One of the progenitors of the mule, the donkey, has given the qualities of sobriety, longevity and resistance to heat which enable this hibrid to stand hot and humid climates which would result in the death of the horse.

Encouragement to the Mule Raising Industry

The management of the Haras has so well understood the services that one may attain with a mule for the national defense and for practical value in our colonies, that it has extended in recent years encouragement to the mule raising industry in creating an exposition for mules in 1894 at the general Agricultural Fair at Alger and also by granting subsidies which have permitted since 1895 of the giving with those of the "Department" and of the stud book, society premiums for the stallion and mule breeding mares best suited for mule raising, and a special fair has been created in which the finest breeding stock and best colts are exhibited. At the Paris Exposition of 1900 they were glad to admit by the side of the breeding stock the mules and colts. Finally for the last two years in our "Department" 12 mules raising stallions have been subsidized by the state and we may add that the breeders not remained indifferent, for since 1884 the Central Agricultural Society of Deux-Sevres has founded a stud book for mule raising animals. This book of genealogy contains 215 horses, 630 mares, 375 jacks and 185 females, belonging mostly in the "Department" of Deux-Sevres and of Vendee; only a few being from the two Provinces of Charente. The jacks and the stallions are divided among 100 breeding tables throughout the country which are called "ateliers."

Stud Book

The stud book has contributed in a large measure to the betterment of the producing stock, but it ought to complete its work by singling out the best specimens, which will aid us in creating a market for our production.

Breeding Society

It was for the purposes of making known the advantages of our mules as well as their selling price that the Mule Breeding Association at Poitou was created in 1892. Like the stud book of which it is an annex, its office is at Niort, and it is managed by a special commission composed of members of the office of the Central Agricultural Society, having M. Lauzeron, the county veterinary, as secretary.

Improvements

A bad custom generally prevailing in our country consists in preserving the long hair on the jacks, forming a thick mat, which the farmers take as an indication that these animals are of the best source. If breeders would only give better hygienic care to their animals and do away with this custom our mule raising industry would certainly increase in prosperity. The stallions used in mule raising ought to be utilized in working on the farm, thus paying for part of their feed, and the exercise would be beneficial in rendering them more prolific, and together with good hygiene it would keep them more healthy. As to the mules and donkeys, their hoofs ought to be trimmed more frequently to insure their standing more normally and to avoid the danger of splitting their hoofs, which may result in quarter crack. In this article we have only attempted to indicate what the mule raising industry is, its importance at the present time and what it may be made with a few improvements. In so short a description we have been unable to go into details of the production of mules, nor to examine at length each of the types of breeding stock that would otherwise have been presented by a zootechnician.

At the congress in Rome in 1903, after an exchange of opinions between M. Bieler, director of the Agricultural Institute at Lausanne, and several Italians, these gentlemen agreed upon the superiority of the Poitevan jack and desired to have Italy imitate the example of Switzerland which had just imported four of these jacks from the Department of Deux-Sevres. As M. Bieler remarked, "The personnel required to take care of these valuable animals should be quickly acquired, and there is no reason to fear that the inexperience among staple horse breeders should be an obstacle in mule production with jacks of Poitou."

The Assembly agreed that all governments possessing regions situated in a hot climate should encourage in a great measure mule raising, and that the jack was an animal adapted to render very much greater service than the horse, as the heat of the country becomes stronger, and the feeding resources less abundant.

In the accounts of the excursions of the congress the main thing was the horse, and we only saw a small paragraph devoted to the mule. However, at Fuchino, the home of Prince Torlonia,

there were a few light animals of the type of the Pyrenees mules, descended from jacks, resembling the Spanish type and native mares, which lacked breadth of build. It was in the north of Italy, at Milan and Turin and the surrounding country, that we saw the only mules which could compare favorably with those of Poitou, in fact they were born in the Province of Deux-Sevres, and had been imported direct or else after having been raised in our Province of Drome, Isere or Veuclause.

Of all the young male mules which come from the southeast of France or are partly raised there, a certain proportion are bought by the Italians. It is especially at Genoa that a number of the deals are made, as well as at Marseilles, and in this part of Italy there is a market for our Poitevan mules, because it is difficult with the light mares of the country to produce such strong mules as ours, even though they should employ our jacks. There is no lack of fertility in these regions, and if the people of Piedmont had our breeding stock and employed our methods they would be able to produce much more powerful mules than they are raising at the present time. If they do not need such a strong, powerful type of animals for their mountains, they certainly do need them for the cultivation of their plains and rolling country.

COÖPERATIVE ASSOCIATIONS OF PRODUCERS FOR THE GRADING,
PACKING, TRANSPORTATION AND SALE OF THEIR PRODUCE
SYNDICAT OF CUGES ET ROQUEVAIRE

Strictly, according to our definition of the term, Distribution and Marketing, these associations should come under "Production." However, they have gone so far into the selling and dominate the market to such an extent that they may be referred to in advance of the strict marketing which comes under control of the consumers. The coöperative dairy and egg associations of Denmark and the similar societies which exist in Ireland are also hard to classify in this respect.

CUGES ET ROQUEVAIRE SYNDICAT

This society of producers in the southeast of France was formed to enable them to maintain their position as the foremost suppliers of capers in the world.

Two little communes, Cuges and Roquevaire, have been engaged from time immemorial in raising capers which they preserve in vinegar and which are used in culinary operations. For a long time they had sort of a monopoly, not only in France but in all Europe, because of the superiority of their product. Until 1892 each family worked by itself and the profits, although moderate, were sufficient to enable them to make a living, until Spain and Algiers, also producers of capers (which, by the way, are not improved by cultivation up to the point of excellence attained by the French capers) began preserving and putting them on the market in wholesale quantities, brought about a reduction in the price.

Capers fell from eighteen cents a pound, which was the cost of production in France, to six cents a pound, which spelled ruin for Cuges and Roquevaire.

They were fortunate enough to find a counsellor who advised the formation of a coöperative society to reduce the expense of preserving and centralize the operations of sale. Formerly, the greatest item of expense had been that of vinegar, which had to pay \$1 per 100 quarts duty, in addition to its price, and it was known that only 1/10 of the liquid was actually retained by the capers in the process of preserving them, and that the balance was being thrown into the brook. The "Syndicat" which was formed, took out a \$5 license permitting it to manufacture its own vinegar. As soon as the producers became united the procedure of preserving capers was standardized and improved, a special brand adopted and a price fixed. There was no longer any confusion as to the identity of the French capers, nor any difficulty in distinguishing them from the exotic variety — the quality being so much better, the "Syndicat" regained the trade and the price soon rose to 12 cents and the association sold \$40,000 worth in one year. The cost of production was reduced to such an extent that the present price is very remunerative, and the producers of these two little communes are enthusiastic coöperators. They have formed a purchasing agency, a manufacturing society, a selling association and a mutual aid society.

FRUIT PRODUCERS' COÖPERATIVE AT FINISTÈRE, BREST

The fruit raisers in this region of France, particularly those engaged in the production of strawberries, have formed several coöperative associations for the grading, packing, transportation and sale of their products in the British market. The movement began in the Commune of Plougastel-Daoulas, situated on the promontory of Finistère, where such excellent strawberries and peas are grown, the annual production amounting to over \$300,000.

Although strawberries had been raised in this section from time immemorial, it was not until 1875, when some British buyers came into the country to collect consignments for the British market, that the French farmers began to appreciate their opportunities. The fruit was shipped from Saint Malo to Southampton. Seeing how profitable the industry had become to the British shippers and how easy the transportation and sale apparently was, certain of the inhabitants of Plougastel, thought it would be to their advantage to undertake this business themselves; thus in 1894 about twenty of them united and formed a coöperative association known as the Shippers' Union.

Dissatisfied with the railroad and steamship transportation facilities, the Shippers' Union chartered two steamers which were used to transport the produce of their society during the season to Plymouth, from whence it was carried to London over the Midland & Southwestern Railroad.

This combination resulted admirably. Thanks to its marine transportation, of which it was now master, the Union was able to supply the British market with regularity and to assure proper care of its consignments in transit. It prospered so well that four years afterward a second society was established among the producers and given the name of Farmers' Union. It also chartered steamers, paying from \$1,500 to \$1,600 per month for the use of each one, in addition to which it had to furnish the coal. In 1900 still another society was formed by twenty-two of the largest producers called the New Union, which chartered two more steamers. Shortly afterward all these three societies, every one of which had its own line of steamships and special agents in the British market to look after the sales, combined, because a fourth society with two more steamers was established in 1906.

The "Syndicat," formed by the union of these four coöperative associations, has a central office in Plougastel at which all the adhering members may receive the current price for their produce as they bring it in. The society acts like any other intermediary on commission, buying the strawberries of its members and looking after the shipment and sale; the only difference between it and the outside shippers is, that the profits resulting are divided at the end of the season among the adhering members in proportion to the amount of goods shipped.

The produce is collected from the centers of production by the "Syndicat," transported at its own expense to the warehouses where it grades and packs the fruit, then carried to the wharves and placed on board ship, all these operations being performed by the employees of the "Syndicat." The merchandise is received at Plymouth under the supervision of two farmers of the coöperative "Syndicat," shipped by rail to the auction markets in the principal cities of England, where it is sold on a five per cent. commission in a manner similar to that in the "Halles" at Paris. The British commission men are, with rare exceptions, honest and satisfactory to their clients. The "Syndicat" has a special agent at Manchester who looks after the arrival and placing of the fruit on the market, and is there to see that it is sold to the best advantage. In 1912 this coöperative association embraced 215 strawberry producers, or about one third of all those in the district of Plougastel-Daoulas. Larger steamships have been procured and thus only two are necessary instead of six, and they have reduced the personnel in England to three, one at Manchester and two at Plymouth.

The nature of the operations just referred to, is similar to that of the producers of butter, eggs and pork in Denmark, the federation of citrons fruit growers and the cattle-raisers' association in Spain and the various coöperative selling societies of producers in the other European countries.

It is interesting to contrast what has been done along these lines in Europe and what is being done in the United States through the several producers' coöperative associations, such as the Eastern Vegetable Growers Association of Virginia and

the Citrous Fruit Exchanges of California, with what may be done by our other producers who are not yet so organized.

In the attempt which has been made during the last year by the express companies to act as direct agents between grower and buyer, the managers of the commission having this work in charge for Wells-Fargo & Company say:

"There is nothing to worry about in the attitude consumers are displaying toward having an express company take their orders and deliver the goods. The trouble is in getting goods enough, of the right kind, to fill the demand. In fact the leading factor in causing the commission to be reluctant to comment on its work is apprehension lest publicity swamp the department with orders which could not be filled satisfactorily with present facilities.

"Lack of a standard among farmers in preparing their produce for market may be said to be the most baffling problem the express company has to grapple with. In California, where practically all the fruit marketed, is graded and boxed under the direction of associations of growers, there is no difficulty in obtaining exactly what the buyer asks for, but the general run of producers in other states than those along the Pacific coast, simply raise crops and sell them as best they can."

One great advantage of collecting, grading, packing, transporting and selling produce through a large federation of coöperative societies is the elimination of the personal element, which in individual marketing has a tendency to put the small apples in the middle of the barrel, resulting in the whole consignment if packed in this way being sold at the market price of the poorest fruit in the consignment. The example of the caper producers, in establishing a reputation for their special brands, should be followed.

SPAIN

THE ORGANIZATION OF THE CATTLE RAISING INDUSTRY

An association has been formed covering the whole of the Spanish peninsula and comprising over 40,000 of the principal

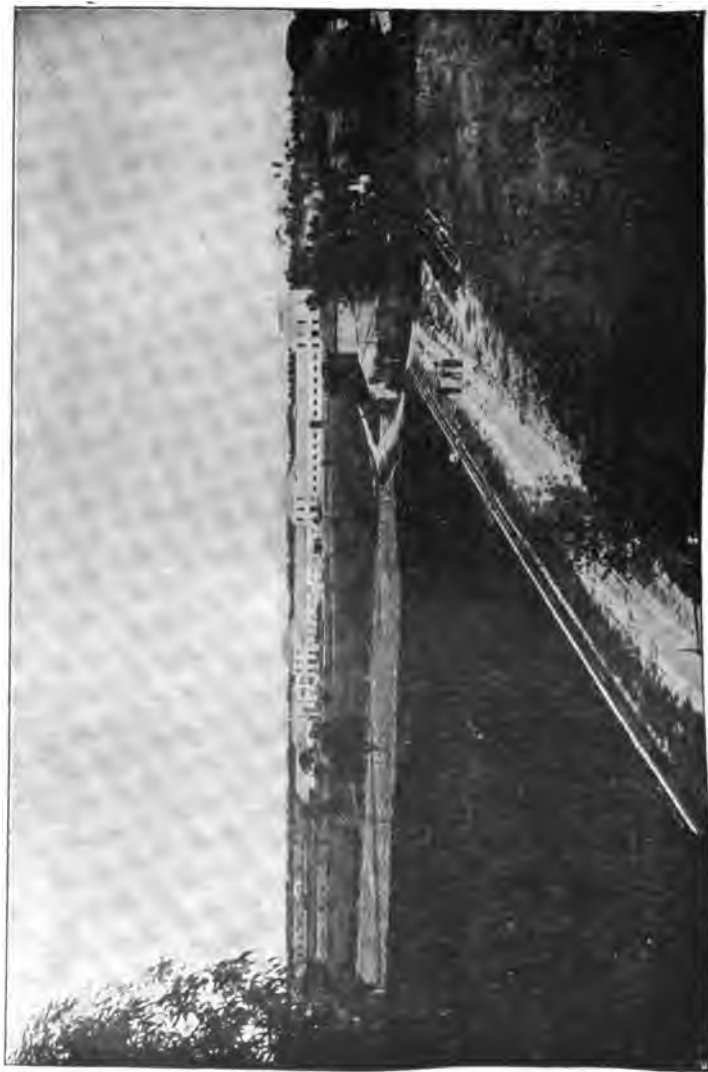


FIG. 179.—DAIRY FARM OF 750 ACRES, "LA RICARDA," SPAIN.

stock raisers of Spain, for the purpose of promoting their mutual interests.

Because of the very great interest that is taken by the whole Spanish people in bull fighting and the honor that attaches to the raising of the special breed of cattle that are employed in this sport, some of the most prominent people in the country have devoted themselves to the raising of fighting bulls and to improving the race. This has also resulted in a very great benefit to the whole cattle raising industry and enables the National Association of Cattle Raisers to exert a powerful influence in the government and upon the transportation companies.

Within the last few years they have succeeded in reforming the methods of production to meet the market requirements and have so arranged the transportation and marketing of their beef cattle that their production is now considered a profitable industry. (See section on marketing in this report.)

The live stock producers' associations throughout Spain, all federated under the National Association of Cattle Raisers, receive a regular market quotation service and special instructions as to the manner in which it will be best for them to handle their production.

They also have purchase departments for the buying of fertilizers, seed and agricultural machinery. As a result of these organizations the stock raising industry in Spain has been put on a paying basis.

LA ASSOCIATIONS GENERAL DE GANADEROS DEL REINO, MADRID

This association, having over 38,000 members distributed over the whole of Spain, had for years been carrying on a campaign of education to encourage better methods of production and has produced excellent results. It was induced to undertake coöperative marketing for its members by an attempt made to have the import duty on foreign meat removed, through representations made to the government by the intermediaries in Madrid. (See translation of *El Problema de las Subsistencias*.)

This association was established in the time of the Moors, with the original purpose of keeping open *Las Vias Pecuarias*, the trails over which the live stock were driven from the plains,

where they were pastured in the winter, to the summer pastures in the mountains. As the country gradually came under cultivation the tendency was for the private property holders to prevent the free passage of these flocks and herds, and the association was principally occupied for many centuries in keeping open these passageways.

Gradually this society became interested in every movement for the benefit of cattle raisers, and at the present time its scope covers the coöperative purchase of all the raw material used by its members, improved live stock for breeding purposes, cattle insurance, rural-credit societies, coöperative sale of cattle, coöperative cheese factories and butter-making plants, wool washing and the publication of monthly bulletins showing the state of the market and the condition of production, annual report, special instruction to the members concerning market prices and requirements, and the methods of production to best fulfill these requirements, cow-testing associations, live-stock breeders' associations, regional and central stock exhibitions or fairs, and general propaganda work.

Most of the prominent officials in the government being members, this association has been able to interest the government in having laws and executing them for the improvements of the cattle raising industry and also to reduce the cost of their products to the general public (the consumers).

PROBLEMS OF THE HIGH COST OF FOODSTUFFS IN SPAIN

As indicated in the translation of the report hereto attached, the government in 1909 ordered an inquiry into the reason for the rapidly increasing cost of foodstuffs, particularly meats, in the city of Madrid. Upon the publication of this report the Association General de Ganaderes published a small printed booklet criticizing the findings of the government report and setting forth the true reason for the high cost of meat, together with recommendations to the government as to the steps necessary to bring about the reduction in the cost to the consumers and an increase in the profits to the producers. (October, 1910.)

The government acted upon these recommendations, with the result that four out of five sets of unnecessary middlemen have

been eliminated, the cost of meat to the consumer is reduced, and the producer's price increased.

MEAT SUPPLY OF MADRID

The consumers buy directly from the meat markets either in the several public markets or in the shops throughout the city, paying 40 cents a pound for the best cuts of beef, 25 cents for round and rib roast, and 14 and 18 cents for neck and hock cuts. The dealers buy in halves and quarters at an average price of 15½ cents a pound from auction jobbers, who purchase directly from the producer's association and pay all the fees to the municipality. They receive for their profit all the parts except the dressed beef, such as the hide, horns, hoofs, heads, etc. The producers receive about the same price that the auction jobbers get, namely, 15½ cents a pound for dressed beef, on the average.

The producers have to pay a killing fee to the municipality, whose employees do the slaughtering at the rate of 80 cents per head for beef cattle and 8 cents each for sheep and hogs. They also pay the freight charges from the shipping point, and 2 per cent., plus the cost of delivery to the abbatoirs, as a fee to the Asociacion General de Ganaderos. Example:

Shipping from one of the principal centers in the Province of Galicia, a distance of 433 miles, to Madrid, in cars holding 15 steers each, weighing on the average 450 kilos live weight and corresponding to 300 kilos (660 pounds) dressed beef, the charge is 276 pesetas (\$50) per carload and amounting to one-half a cent a pound on dressed beef. The journey takes 36 hours, and assuming the dressed weight of the steers to average 660 pounds, at a price of 15½ cents, the gross price per steel amounts to \$100. The steers are 3 years old, and the freight amounts to about \$3.30, the slaughtering fee to 80 cents, the 2 per cent. commission to \$2 and the incidental charges to about 90 cents, making a total cost of \$7 per head, or 7 per cent., for marketing.

The intermediaries who have been eliminated are (a) the country buyers (comisionistas), (b) the shippers (expeditores), (c) the commission men (tratantes), (d) the slaughterhouse men (matadores). The auction jobbers (abastecedores) have not yet been eliminated but are soon to go, and the only really necessary

intermediaries (tablajeros) are the only ones which the cattle raisers' association feel are entitled to existence.

The best milk producing goats are imported from Murcia. They weigh 55 to 96 pounds and give an average of 2 to 2½ quarts of milk each daily. They sell at \$20 to \$35 each and are fed entirely on dry alfalfa and beans at a cost of 9 cents each per day. They are productive from the second to the sixteenth year. Each year the flesh of 60,000 goats is consumed in Barcelona.

Goats' milk is largely used throughout Spain, some of it being sold in bottles, but mostly milked directly in the street. Only a little cheese is made from goats' milk.

There are about 3,500,000 goats in Spain, and last year 1,197,754 pounds of their skins, valued at \$573,647, were exported from the Peninsula.

The abastecedores have nothing to do but auction off the dressed beef to the dealers (tablajeros) and sell the by-products, out of which they get their profit, amounting to an average of \$25 per steer. They pay to the municipality a fee of 5 cents a kilo (2.2 pounds) amounting to \$15 per steer, leaving them a profit of \$10 or 10 per cent. The Cattle Raisers' Association considers this profit unreasonable and is considering the advisability of taking over under its own management the auctioning and disposing of the by-products. They have recently acquired pasture lands and stockyards outside of Madrid, covering about 1,000 acres.

The members pay \$2.50 a year for every 1,000 sheep, hogs or other small animals, or for every 100 large cattle they possess, as a fee to the Association. In 1909 there were slaughtered in Madrid 77,299 head of cattle, 19,741 calves, 300,294 sheep and 61,675 hogs. This does not include those killed on the outside and shipped into the city already dressed.

The reforms accomplished are largely due to the little booklet entitled *El Problema de las Subsistencias*, the criticism by the society of cattle raisers to the government report. (See translation following.)

CONCLUSION

For magnitude and results the coöperative selling operations of the citrus fruit growers (*Federacion Naranjera*), and the

Cattle Raisers' Association (Asociacion General de Ganaderos) are among the most important of any coöperative agricultural undertakings in Europe. They have only been occupied with distribution and marketing for a few years, but they have been wonderfully successful from the very start, due largely to their excellent organization as purchasing societies for production prior to their undertaking the sale of produce.

Although there are not very many coöperative selling associations among the Spanish farmers, the large number of "Sindicatos" already existing there, form a solid basis on which to establish them, and with the example and encouragement of the two Associations already described much progress is being made.

THE TRUE CAUSES OF THE HIGH PRICE OF MEAT

By the President of the National Cattle Raisers' Association of Spain

Now that we are examining into the true causes of the high price which the public pays for meat, it may be well to indicate the following points:

- (a) The unbusinesslike arrangement of abattoirs and markets, together with the action of the intermediaries.
- (b) The taxes and fees that are charged upon meat.
- (c) The slowness and expense of the transportation arrangements.
- (d) The lack of interest of the state in agricultural and live stock interests.

Much has been written and a great deal said about the abuse of the abattoirs and markets. The municipality of Madrid has been petitioned repeatedly and the public has been clamoring continuously for a remedy to the unreasonable system of intermediaries which now exists. The parliament has heard these requests and the government has recognized the justice of them by the royal order of October 13, 1882, and in the decree of April 6, 1905, presented by Senor Gonzalez Besada, which have never been carried into effect, and again by the preamble of the decree authorizing this inquiry. The chamber of commerce and the National Congress of Cattle Raisers, the National Agricultural Association of Zaragoza, the councils of agriculture, the periodical press, the numerous organizations, including our own

association, have repeatedly protested against the vicious organization of the abattoirs and the pernicious intervention of the intermediaries, which has all been recognized by the municipality on several occasions, and more especially in the reports published in 1907 by Senor Sanchez de Toca, former mayor, and very recently by the present mayor, Senor Francos Rodriguez, and which has been graphically set forth by Senor Maltrana, the special delegate of the abattoirs. A careful study by Senor Maltrana indicates that the sale of meat during the last year has amounted to more than 23,364,307 pesetas (\$4,672,861) and the price paid by the public for this same meat was 43,469,261 pesetas (\$8,694,000); that is to say, 20,000,000 pesetas has been consumed between the abuses of the intermediaries and in fees and taxes. And still there are those who ask what is the cause in the increase in the price of meat.

Let us examine in detail a few of the thousand and one abuses that are committed in the abattoir and market of Madrid and which are the continued cause of discouraging producers from selling in our market, although very much the same conditions obtain in our other centers of consumption, for the supply comes from all parts to Madrid and the prices in all other markets are influenced by those which are quoted in this center.

The auctioning of meat in Madrid is monopolized by a limited number of dealers, who are called "abastecedores." They are the only ones who can slaughter animals, and upon them depend both directly and indirectly the personnel of the abattoir, and they are the absolute masters, who, by collusion among themselves, fix the purchase price to suit themselves, and after selling the hides and all the other parts except the dressed beef for their own profit, they dispose of the latter to the retail dealers (tablajeros). The producer finds it impossible to sell directly to the tablajeros, neither can he sell directly to the abastecedor, who will only buy in the open market, to which the cattle raiser can not afford to go in person, for he can not neglect his other interests.

There exists still another intermediary, the commission man (tratante), who lives in perfect harmony with the abastecedor and shares the dominion of the abattoir with him, also the excessive profits, at the cost of both the producer and the consumer. Very

rarely this tratante, who enjoys the privilege of the open door of the abattoir, buys directly from the cattle raiser. There generally exists another intermediary, being the one who buys from the producer and sells to the tratante.

The reason why Producers do not Come to the Centers of Consumption

The producer finds it impossible to come to the market for the following reasons:

(a) Ignorance of the prices quoted, which are generally a mystery; those being published are often false and for the purpose of attracting innocent cattle raisers, in order that they may send their cattle, thus flooding the market, with a consequent reduction in the prices, which causes enormous losses to the producer.

(b) Because in Madrid there exist no pasturage facilities where cattle may be kept properly, those which do exist being miserable and infected. There are some which belong to the intermediaries themselves, where the cattle are not fed, or else the prices are excessive for what little feed they do furnish.

(c) Because the abastecedores prefer to buy of their allies, the tracantes, who monopolize the business, or if they do buy of the cattle raisers it is on such unfavorable conditions as to discourage such dealings.

(d) Because the cattle-raisers can not come to Madrid with each consignment of cattle, for so doing would increase the expense too much, and there are no persons whom they can trust to represent them in the market.

The Cattle Raiser Can not Slaughter for His own Account

The cattle raiser finds it impossible to sell directly to the tablero, because of the following reasons which are taken advantage of by the abastecedor:

(a) The slaughter has to be done by personal employees of the abastecedor, and naturally he would not consent to having any one else do it.

(b) There exists no guarantee whatever as to the weight al-

lowed in the abattoir, this having been established in the time of the ancient Romans and being subject to shrinkages and discounts only too well known.

(c) The cattle raiser is allowed no credit whatsoever for any of the parts except the dressed beef, such extra parts forming the principal basis of monopoly of the abastecedores.

(d) The cattle raiser would find great difficulty in selling the dressed beef to tablajeros, partly because of the slowness with which they pay, and the little personal knowledge that he could have of their responsibility, and also for the reason that they would be afraid that if they bought of him the abastecedor would refuse to sell to them.

(e) Also because they lack trucks in which to transport the meat, this trucking business representing one of the most important monopolies enjoyed by the abastecedores.

(f) Because there does not exist in the abattoir any person to defend the interests of the cattle raisers, the representative being named by the abastecedores and tratantes. The purpose of the royal decree of Besada, providing for a real representation of the cattle raisers, has been openly opposed by the intermediaries, who allege that as they are the ones who slaughter the animals they should be permitted to name the representative, whereas it was originally intended that he should be named by the cattle raisers.

The cattle raisers, not being able to take any part in the market or the operations of the abattoir, sell their animals to the little dealers, and these in turn sell to those who have the slaughtering privileges of Madrid, and those sell to the abastecedores, who, in turn, sell to the tablajeros, with the following result: (1) Besides the abastecedores there generally exist three other intermediaries between the producer and the consumer, and (2) that the prices that exist in the market are neither fixed nor known by the cattle raisers, but established by the dealers, and it may be also noted that part of the tablajeros are grouped together in wholesale associations who buy of the tratantes and who enjoy the benefits of the sale of all the extra parts in the same manner as the abastecedores.



FIG. 180.—STABLE OF "LA RICARDA," SPAIN.



FIG. 181.—MILK ROOM OF "LA RICARDA," SPAIN.

The Abuse of the Abattoirs

The principal abuses which are committed in the abattoir to the disadvantage of both the producer and the consumer in that they lower the price to the former and raise the price to the latter, are the following:

(1) The abastecedor has a right to all the extra parts (despojos), without having to pay anything for them. These despojos, which include the head, tongue, brains, tripe, liver, feet, blood, and all other extra parts, are valued for each head of cattle at least as much as 22 pesetas (\$4.40). If the liver is not in good condition and is rejected and burned by the inspector, the abastecedor discounts 6 pesetas (\$1.20), in spite of the fact that he has not paid a cent for it. Besides to repay him for the duty charged by the municipality, the abastecedor retains the hide, the price of which in a 440 pound animal varies between 40 and 50 pesetas (\$8 to \$10). For sheep the despojos are worth 2 pesetas (40 cents) and the same for hogs, to say nothing of the additional value of a good many parts which are not enumerated. This appropriation of the despojos, which constitutes the basis of monopoly, induces the abastecedores to prefer small animals, because with an equal quantity of pounds of meat they obtain a larger quantity of despojos.

(2) The slaughtering is done in the early hours of the day, and the weighing at 4 o'clock in the afternoon, allowing eight hours in which the meat becomes dried out; in spite of all this there is a discount of 1,600 grams (3.52 pounds) per beef animal, 100 grams (.22 pounds) for sheep and hogs, and if they are not completely dry at the weighing hour the management takes off another kilo (2.2 pounds), in which case two kilos (4.4 pounds) are deducted in paying the cattle raiser, and in the case of hogs another half kilo (1.1 pounds) is also deducted.

(3) Besides these public discounts there is no guaranty as to the weight, which is estimated by the old Roman procedure and not by actual weighing. This constitutes the basis for payment and is always less than the actual weight which is charged against the tablajeros, the difference being enjoyed by the employees of the abastecedores.

(4) Discount for points (puntos) which is established at the caprice of the abastecedor and which amounts to a reduction of 80 cents per hundredweight for each punto per animal, regardless of the size of the animals, whether fat or lean, or whether the animal is accepted or rejected by the inspectors, for when rejected the discount is taken from another animal of the same consignment.

(5) If an animal was found to have suffered from the effect of a blow, the abastecedor deducts a certain number of kilos, even when the inspector accepts it and allows the bruised portion to be sold to the consumers, for which the abastecedor receives pay from the tablajero.

(6) The slaughtering duties which the municipality charges amount to 4 pesetas for each beef animal, and the abastecedor on this account deducts $4\frac{1}{2}$ pesetas, retaining without any right whatsoever, the extra $\frac{1}{2}$ peseta per head.

(7) Another $\frac{1}{2}$ peseta is deducted for each beef animal or each hog and a tenth of a peseta for each sheep as a commission charge, although there exists absolutely no explanation for it, the abastecedor not acting in any capacity of a commission man.

(8) For the pay of one who is illegally termed the representative of the cattle raiser, a commission is charged for each animal, although not officially allowable.

(9) For each 10-cent stamp charge on receipts a discount of from 25 to 50 cents is charged, according to the amount of the receipt.

(10) The amount of the bill is discounted 1 per cent. and sometimes $1\frac{1}{2}$ per cent. when payment is made in bills (instead of silver).

(11) In case of sheep a depreciation discount of a half peseta (10 cents) is charged for each skin, although the purchaser of the skin makes no reduction in paying the abastecedor.

(12) Another half peseta is frequently deducted for defects in the despojos, for which the abastecedor has paid nothing whatever to the producer.

During the year 1909 there were slaughtered in the abattoir of Madrid 77,299 cows, 19,741 calves, 300,494 sheep, and 61,675

hogs. This does not include the animals which were killed outside of Madrid and sold within the city.

Without taking into account the losses which are impossible to calculate, such as inaccuracy in weight, reductions for bruises, or the value of the hides, there results between duties, fees and abuses a loss of 13,967,967 pesetas (\$2,793,600), of which the duties amount to 9,288,293 pesetas (\$1,857,660), and the abuses of the abattoir to 4,678,975 pesetas (\$935,795). The uncalculated abuses amounted, according to Sr. Sanchez de Toca, to 12,200,000 pesetas (\$2,440,000).

An analysis shows that each head of beef cattle was taxed in addition to the abuses of the intermediaries 92.73 pesetas (\$18.54); each calf 23.30 (\$4.66); each sheep 7.12 (\$1.42) and each hog 68.12 (\$13.62).

The above figures show clearly to what extent the duties and abuses are responsible for the high cost of meat, and why it is that the producers are discouraged from trying to ship in their products to the market in Madrid.

Means of Transportation

The freight rates on the railroad have been constantly discussed in the agricultural congresses and the government has been deluged with petitions asking for a reduction and unification of the railroad tariffs. Some people suppose that the excessive cost and slowness of transportation are the only cause of the falling off production and the high price of food stuffs; others, not knowing the industrial character of the railroad companies and the legal power of their concessions, have undertaken to force upon them unreasonable reductions in the tariff which the railroad companies refuse to recognize on the ground that they are contrary to the provisions of their concessions, maintaining that the state had no right to modify the original tariff. These errors and the power of the companies were undoubtedly the cause of the failure in the railroad conference in 1907.

Although the high cost of transportation can not be considered as the only cause for the unfortunate agricultural condition of our country and the power of their concessions must be considered, still it must be admitted ~~that~~ they have had a great deal to do

with the critical situation which exists in agriculture and cattle raising, and that the government has the means, more or less direct, of forcing these companies to meet the demands of public opinion. The principle of high freight rates in a poor country is wrong. It is difficult to increase production and develop the agricultural wealth of the country without economical means of transportation. The limits mentioned for transportation rates in the concessions should be interpreted to mean the maximum tariffs allowable, reserved for abnormal circumstances; still these maximum rates are charged for the transportation of cattle and the railroad companies claim that if they charged any less they would lose money.

Nevertheless it may be seen by the following example that less rates have been established in numerous cases without having resulted in loss to the companies, for wherever competition exists these prices for transportation are reduced and still the companies continue in business.

While the current price of the tariff amounts to 62 to 75 pesetas (\$12.40-\$15), per car-kilometer (about 6/10 mile), still in the line from Santander to Madrid there has been established for cattle a rate of 39.2 (\$7.84); in that from Corunna to Barcelona, 31 (\$6.20); in that from Medina del Campo to Barcelona, on two-story sheep cars, a rate of 27½ (\$5.50); and in the line from Cartagena to Barcelona, 14 (\$2.80) per story; and in the line from Badajoz to Barcelona, 16.1 (\$3.22) per story. Besides showing by these examples to what point the companies have been able to reduce their freight rates, without prejudice to their own interests and of their own accord, the following comparisons show every clearly that it can be done.

Cartagena-Barcelona, 811 kilometers (486 miles) amounts to 118 pesetas (\$23.60); Cartagena-Madrid, 529 kilometers (318 miles) amounts to 198.87 pesetas (\$39.77), which is 80 pesetas (\$16) more, although the distance is 276 kilometers (145 miles) less.

These cases and many others which might be cited indicate the necessity of studying the means of arriving at a uniform system of railroad tariffs. Our association does not ignore the enormous

difficulties that must be overcome, neither does it believe that it is impossible to overcome them.

The theory advanced by the railroad companies that a reduction in the tariff would not result in a sufficient increase in the amount of freight transported to make up the difference is not well grounded in the case of transportation of cattle, for if the freight rates were reduced the cattle raisers would cease to use the "vias pecuarias" and would ship cattle over the railroad which they are now driving over the trails. It is necessary to improve the facilities for loading and unloading, especially with a view to performing these operations more rapidly than at present. Attention should also be given to scrupulous disinfection of the cars, for it is well known that the railroads have been one of the principal means of propagating the epidemics which have caused frequent and enormous damage to our cattle-raising industry. The government can also help in requiring the companies to reduce the freight rates by taking off the tax upon such transportation which amounts at the present time to about 20 per cent.

Besides the railroads the other means of communication which the cattle raisers use are the "vias pecuarias" which, in spite of the constant efforts of this association, are occasionally absolutely intercepted. These highways for cattle, until such time as the country shall be irrigated and put under proper cultivation, must be kept open so that the cattle may be driven from the summer to the winter pastures and also to the railroad stations and the markets. In the several assemblies of cattle raisers held at Zaragoza in 1903, at Madrid in 1907, and as formulated by the Association of Agriculturists in 1887 and in the investigation of the high cost of food stuffs by the chamber of commerce, it has been indicated unanimously that one of the principal necessities in the defense and encouragement of cattle raising is the conservation of the vias pecuarias. It is indispensable that the state shall occupy itself with this matter, employing the necessary means for the defense and conservation of these highways, keeping open those which are really necessary and selling the obsolete ones, the proceeds from which could be used for the encouragement of the livestock industry.

Means of Encouraging the Live Stock Industry

Without going into all the reforms that might be established for this purpose we will point out some of them, as follows:

1. By developing irrigation work and transforming the methods of cultivation a greater amount of forage crops and pasturage may be developed.

2. At the present time a great deal of interest attaches to the food value for cattle of the by-products of manufacturing, and the state may exert a decided influence by reforming the law relating to sugar so as to prohibit or make difficult the production of alcohol, and also in a similar manner by restricting the wine manufacturers from producing alcohol from the grape skins. The beet pulp, cane residuum and grape skins would then be available for cattle feed.

3. The establishment and development of agricultural credit, permitting the formation of coöperative societies of production, distribution and insurance of cattle.

4. Providing the proper protection for the industries derived from cattle raising, such as the transformation and sale of products like wool, cheese, butter, etc.

5. The perfection and unification of the Department of Animal Hygiene with a view to guaranteeing the health of the cattle coming into our frontier.

6. The state should dedicate more resources for the celebration of stock fairs, for the establishment of stock-raising experiment stations (*granjas agro-pecuarias*), and for establishments for the improvement of the race of cattle, importing the best type of foreign cattle appropriate for each locality, and paying still more attention to the selection of the native prize animals, which should be bought by the government at each stock fair and maintained for the benefit of each locality toward improving the breed.

7. To oblige the municipalities to provide weighing scales at the railroad stations and markets, so that the cattle may be weighed alive, thus enabling the producer to know the exact condition of his cattle, being aware of what he is raising and what he is selling, and to do away with the guess work and estimates by observation, which have always resulted to the disadvantage

of the cattle raisers. The true meaning of the quotations reported from all the markets and shipping points in Spain, which are now a mystery and signify nothing, since they are based upon incorrect weights determined by observation, will be apparent when exact weighing is established.

Having indicated in a general way the means of encouraging the cattle-raising industry which should be adopted by the state, we will now proceed to indicate, in a concrete manner, the methods of procedure which should be adopted to do away with the true causes for the high price of meat, namely the improper arrangement of abattoirs and markets, and the high duties and fees imposed on the meat by the municipalities.

Organization of Markets and Abattoirs

As a basis for the reform, the intermediaries should be suppressed and means provided for the proper representation of the producers at the consuming centers. To accomplish this the following provisions will be necessary:

1. In order to secure the economic existence of the cattle at the markets, pasture lands and stables should be provided for the cattle at a reduced price, and an exact tariff established. To bring about this reform the cattle-raising association offers its collaboration.

2. As a means of putting the cattle raisers in relation with the tablajaras, agents should be named, charged with receiving the cattle and effecting the sale directly to the tablajaras and to make collections for the meat and the extras (despojos) as well, delivering the same to the cattle raisers. The intervention of these functionaries should always be obligatory, they should be put under bond and should receive a certain percentage of the net sales. They should be named and assigned by the municipality from among candidates proposed or acceptable to the association of cattle raisers, for these agents are nothing else but the representatives of the cattle raisers.

Contracts between the agents and the tablajaras should be made in triplicate and in writing, one copy remaining in the office of the superintendent of the abattoir. A daily bulletin

should be published indicating the prices and the quotations, and our association also offers its coöperation in this matter.

3. In the same manner as weighing scales are provided in the railroad stations and the markets there should always be scales in the abattoirs. The method of applying the duty or tax should be reformed to depend upon the live weight, so that the daily quotations at the railroad stations and markets may be understood and interpreted by the producers, who will then know the value of their animals, and will in this way be encouraged to improve the character of their production so as to bring about the very best dressed beef.

4. The services in the abattoir should be entirely under the direction of the municipality, as should also the trucks which are used in transporting the meat. These should be the property of the municipality or of the establishment which is in charge of this service. All employees should be directly paid by the municipality.

5. The municipality should have absolute control of the use and the transformation of the despojos of all the animals which are slaughtered, paying the value of them to the cattle raisers, the income from their sale accruing to the municipality or to the establishment in charge of this service.

6. The so-called faithful representatives of the cattle raisers at present existing should be suppressed and the weight guessers, who should be superseded by real representatives, approved by the cattle-raisers association, who should record the weight from the scales.

7. The slaughtering fees should be removed, for they are among the most objectionable elements, tending to discourage producers from sending cattle to market.

8. In all the large cities all kinds of cattle produced in Spain and slaughtered in other abattoirs should be permitted free entry in Madrid, being subjected to proper inspection and sanitary arrangements, as well as required to conform to the royal decree of April 6, 1905. There is no good reason why lambs and calves should be admitted when all other classes of animals are excluded in a slaughtered condition. This reform would increase the

quantity of meat shipped in and result in the creation of rural abattoirs in the centers of production.

9. The number of retail establishments (tablajerías) should be limited, for there are at present many of them which sell less than 110 pounds of meat a day, and in order to cover their expenses they naturally have to increase the price to the consumers.

Transportation and Duty of Meat

(a) The railroad transportation tariffs on cattle should be reduced and the imposts upon such shipments should be removed by the state. The reduction should be at least one-third from the present rates. The unification of the tariffs and their classification are necessary and a beginning should be made by requiring them to be uniform over all the lines of each company. Cattle should be transported more rapidly than they are being transported at present, and the facilities for loading and unloading, the disinfection of the cars, etc., should be properly provided for. The state should also take measures for the defense and conservation of the "vias pecuarias."

(b) The unreasonable duties which are placed upon meat are due to an error on the part of the municipality in considering the abattoirs as a source of income, instead of considering them as a means for public service. The high duties on products for consumption which are at present adding so considerably to the price of meat should be immediately removed. The duty of 1 per cent. should be removed, because it is absurd that an additional burden should be placed upon one article of consumption to make up for that taken off of another (tax was taken off of wine). The duty charged for slaughtering and dressing should be reduced and limited to an amount just sufficient to make up for the cost of operating the municipal abattoirs.

By carrying into effect these reductions in the duties and modifications in the management and faulty relations of the markets and abattoirs, the 14,000,000 pesetas (\$2,800,000) which are annually disappearing among the abuses and the excessive duties will be done away with. The high profits of the tratantes and the other intermediaries which are at present interpolated between the producer and the consumer may be deducted

from the selling price of meat and partly added to the price paid the producer.

In this way important benefits may be brought about in the price of the most important article of food without prejudicing the agricultural or cattle raising industry of the nation, but actually benefiting it.

Signed, October 10, 1910, at Madrid.

EL DUQUE DE VERAGUA,
President.

FEDERACION NARANJERA, VALENCIA

Prior to the organization of this association the citrus fruit producers of Spain had no control whatever over the selling price of their products and had to accept whatever returns the commission merchants and shippers chose to report. Frequently the returns were not sufficient to pay the charges of gathering, crating and transportation. Shipments were frequently reported to have arrived in bad condition and corresponding reductions made from the selling price. The local syndicate (sindicato) of Valencia made a careful investigation of the marketing problem, finding that their produce was frequently stored next to the boiler on board ship, resulting in its deterioration from excessive heat; that it was generally carelessly stowed away in the hold of the vessels, so that it shifted about and bruised the fruit, and that the shippers showed little interest in having the shipments go direct and arrive in good order at the market. The returns were found to be less than the true selling prices, or these prices were arranged by collusion between the shippers, commission merchants, and the purchasers in the foreign markets.

The officers of the local syndicate decided that it was about time to organize a coöperative marketing department, and they invited the other citrus-fruit producers to join with them. As a result La Federacion Naranjera was formed, taking advantage of the privileges granted by the law of January 28, 1906. (See

NOTE.—Nearly all of the recommendations made in this report were shortly after adopted by the Municipality of Madrid and by the Government of Spain, with the result that the marketing of cattle is all under the direction of the association of cattle raisers, and the price to the consumer has been very considerably reduced.

by-laws translated following.) The purposes of this society are to further the interests of all its members in purchasing by wholesale all the raw materials which they use in their industry and by selling collectively all their produce.

Every year the association establishes an internal agreement between the several "sindicatos" and the individuals who make up its membership, regulating the manner in which the fruit shall be gathered, graded, packed, shipped, and sold, and providing for the method of distributing the profits. When the federation was first formed its managers went to the steamship and railroad companies and demanded proper accommodations and freight rates. They were resisted at the start, but by bringing pressure from the government to bear upon the transportation companies they succeeded in getting satisfactory accommodations. They next established receiving stations in the several communities, where the fruit was collected and packed under the direction of their own inspectors. They also sent agents to London, Liverpool, Amsterdam, Hamburg, and Odessa, whose duty it was to keep track of the market, advising the central office in Valencia of the quantity of each kind of fruit that it would be safe to ship to each, to receive and sell at auction, and to look after the general interests of the federation in the foreign markets.

Immediately the prices went up and the citrus-fruit industry became profitable. A year ago a special agreement was entered into between the producers as to the prices which should prevail during the season for first, second and third grade fruit, and the new agreement has been entered into for the season just passed of 1912 and 1913, the prices being fixed at \$1.90 to \$2.35 for first class, \$1.35 to \$1.80 for second class, and 90 cents to \$1.25 for third class, no oranges to be less than two inches in diameter, these prices per thousand to the consumers f. o. b. the farm. The price of lemons has been as high as \$7 per hundred pounds, and the net profits of operation among the citrus fruit growers average from 7 to 12 per cent. per annum.

The officers of the federation have recently encouraged the onion and potato growers of Valencia to organize coöperatively for the sale of their products, the price of which at present is very low, onions selling at 25 cents a bushel in crates 11 inches

by 14 inches by 4 feet, holding $2\frac{1}{2}$ bushels, and weighing 125 pounds, and potatoes in 2-bushel sacks, weighing 125 pounds, and selling at 50 cents a bushel f. o. b. dock Valencia.

On June 12, 1913, the docks at Valencia were piled high with crates of onions delivered at 62 cents a crate for shipment to England. Six weeks later a crate of these same onions was selling at retail through a country grocery store in New Hampshire at the rate of \$4.50, seven times the price received by the producer. These onions had been sold to a dealer in London and then reshipped to America.

When a more complete system of coöperation is established the prices to consumers in America ought to be less and the Spanish producers ought to receive more.

Citrus Fruits.— In addition to the 20,000,000 crates of citrus fruits shipped from Spain last year there was a great deal of fruit which was allowed to go to waste because of poor facilities for conserving it. The large quantities of marmalade which are being manufactured from sour oranges in England had better be manufactured in Spain, where the labor is less expensive and where a large quantity of overripe fruit which can not stand shipment, might be utilized. The federation having already established packing houses will soon begin the making of marmalade. The average orange crates hold 450 and weight 175 pounds but some crates are made considerably larger, so the prices are quoted per thousand, and have averaged this year about \$2, making the averaged sized crate of 450 oranges net the producer nearly \$1 per crate.

At Beniopa, Valencia, there is an orange and lemon property belonging to Senor Don Jose Rausell, 80 acres of which is planted in oranges and lemons and valued at \$1,000 per acre, 20 acres more of unirrigated land being planted in locust-bean trees, and is valued at \$500 per acre. The citrus-fruit trees are watered from an inexhaustible well on the property by a pump operated by a 6-horse power gasoline engine and lifting two cubic meters of water to the ground below it and 800 liters (quarts) to the higher ground per minute. The locust bean grove is too high up to be watered from this well, and so remains unirrigated. Lemons have been sold in 1911 for 10 pesetas per arroba, equiva-

lent to \$1.80 for 25 pounds, or \$12.60 per 175-pound crate. There are thirty men constantly employed at about forty cents per day, and additional help during the busy season at from sixty cents to \$1 a day. The best orange growing land in Valencia before planting is valued at \$1,000 per acre, when the trees are ten years old at \$1,500 an acre, and for the finest old orchards the value runs as high as \$3,000, one having sold recently for \$2,800 an acre.

Coöperation has been so successful in the distribution and marketing of citrus fruits and is being taken up with so much enthusiasm by the other producers in Valencia that the effect is sure to spread to other parts of Spain.

POULTRY RAISING

TORRE MELINAS, BARCELONA

A poultry farm situated about a mile to the north of the city and owned and operated by Senor Don Jose Pons-Arrola, has 8,000 fowls kept in separate pens, 1 cock and 16 hens in each. The chickens are hatched by incubators and raised by brooders, 800 daily, with a loss of only 10 per cent mortality. The hens average 800 eggs a year each during the period from 6 months to 2 years of age, when they are killed and sold. Most of the chickens are sold at once after hatching at 10 cents each to people who come to buy them at the farm. When not sold immediately they are kept for four months, when they weigh 6½ pounds each and sell at 65 cents. Setting eggs sell at 80 cents and those for table use at 40 cents a dozen. Ducklings just hatched sell at 20 cents and duck eggs at \$1 a dozen. The proprietor also keeps some live stock, his sheep yielding 15 pounds of wool each, at 30 cents a pound, and the lambs weigh 100 pounds at 4 months old and sell at \$12 each.

This is not a coöperative farm, but its proprietor is the leading officer in a local syndicate, and he is operating this farm as an example to show what can be done.

COÖPERATIVE AND OTHER ASSOCIATIONS FOR THE MARKETING AND DISTRIBUTION OF FOOD PRODUCTS

In order to establish a definite line of demarkation between that which should come under the attention of the producer and that of the consumer, we will consider that the subject of distribution and marketing only deals with the operations which are performed in handling commodities from the time when they arrive at the city terminals until they reach the consumer.

In the instructions given to the American commission for its investigation of agricultural conditions in Europe, one of the points insisted upon was an investigation of "the relation of the cost of living to the business organization of the food producing classes." The observations of the commission pointed to the fact that "the cost of living is affected more by the business organizations of the food distributing classes." Only in cases where the consumers exerted themselves and made an effort to control the immediate agencies which supply them were they able to secure the benefit of reduction in cost. Everywhere the consumers desire the best quality and variety of produce at the lowest price and when they live in the open country or in small towns arrangements made directly with the farmers for such produce as can be furnished by them usually result in considerable economy. However, commodities that can not be produced in the locality may be also secured at a considerable saving by buying them at wholesale. This the European people were doing through coöperative purchasing societies in many instances, at the cost of perhaps half what they would have had to pay to retail dealers.

In our cities practically all commodities have to be imported and it is difficult for the people who have produced them to go further in the distribution than the city terminals. All investigations, both in Europe and America, indicate that by far the greatest amount of expense in perishable food products and in many that are nonperishable, is incurred in city distribution. The consumers having this problem at their very doors, they are in the best position to regulate it and so enjoy the benefit of what

"The Consumer"



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saving may be made. In other words, the cost of food and clothing is largely in their own hands.

The remedy has been demonstrated to be a combination of the consumers enabling them to purchase at wholesale and distribute for themselves; and the poorer classes in Europe have been successful in such efforts. In addition they limit their requirements to the articles which it is possible to secure for low prices. They do not insist upon the most expensive cuts of meat nor do they require a half dozen special trips by delivery wagons for trivial quantities of butter, eggs and groceries each day.

Some of the fundamentals which have contributed to simplify and lessen the expense of distributing the necessaries of life to the consumer in Europe are:

(1) A proper plan of receiving and distributing produce usually provided by the municipality.

(2) A systematic and well regulated system of markets and abattoirs also under municipal control.

(3) Coöperation among the consumers in simplifying distribution and delivery.

(4) Well organized private distributing corporations.

(5) Elimination of duplication in delivery by limiting the district which may be supplied from each center where the produce enters the city.

Two very pronounced examples of successful attempts at reducing the cost to consumers will be considered. The first one is the Coöperative Stores of Great Britain and the second the marketing systems of France, particularly that of Paris, the central market of which, called the Halles Centralles, is the largest and most efficient in the world. It will not be necessary to go into details of all the other successful European markets, for they are conducted on similar principles.

CONSUMERS ACTIVITY IN REDUCING COST OF DISTRIBUTION
THE COÖPERATIVE WHOLESALE SOCIETY (LTD.), LONDON, JULY
10, 1913

One-fifth of the population of the United Kingdom is in the habit of making purchases at coöperative stores, where a little paper or metal check, with figures showing the amount, is given

with each purchase. The shop looks like any other; the goods outwardly are not very different; the giving of the check with the purchase is the only feature likely to strike an observer. During 1910 these coöperators did a total trade of over £111,582,779 (\$553,165,558). Nearly 123,000 persons were employed in those shops and the warehouses and factories connected with them. These employees were paid £7,133,000 (\$35,665,000) as wages during the year.

Yet, small as these wages may seem (the average—men, women, boys, and girls, all together—was 22s. per week), they were substantially higher than the majority of the workers would have obtained in other shops, warehouses, or factories. The goods were of the best quality, and as cheap as in other shops, and the hours of labor less. The purchasers were, for the most part, of the so-called “well-to-do” working class.

The total profit on this £111,582,779 (\$557,913,895) of coöperative trade in 1910 after wages and expenses were paid, amounted to £12,024,816 (\$60,124,080). The total capital employed was £50,909,412 (\$254,547,060). Under this system of business followed by one-fifth of the population this profit would have been divided, as interest on capital, between a comparatively small number of tradespeople. Under the coöperative system this huge sum was claimed by 2,661,000 members of coöperative societies. Twenty years ago the total trade of the societies in the United Kingdom was under £40,000,000 (\$200,000,000).

These facts and figures afford the most convincing evidence of the inherent vigor of coöperation. So signal a success justifies the sanguine ideal of the Rochdale weavers that the workers of the country were able to own and manage their own business. There are other features of coöperative work which constitute an effective denial of the charge sometimes made, that coöperation is no more than shopkeeping. During 1910 over £91,500 (\$457,500) was spent in educational work, an amount which represents much earnest labor in the direction of enlightening members as to the principles of the movement. students' classes, lectures, and so on. Nor are wider claims ignored, for during

the same year over £56,000 (\$280,000) was subscribed to various charitable objects.

The idea that profits should be paid out on the same basis as they are paid in, that as they are first reckoned and paid on the purchase price they should be paid out as dividend on purchases, while capital should only receive a fair interest, seems to have been the original discovery of those Rochdale weavers in 1844. They held very strongly that profit made out of the people in front of the counter should be paid back to them. Their little attempt to run a shop that should belong to the customers, and not to an individual, was attended with immediate success. It held the germ of a great idea, that no individual should be allowed to amass a fortune out of the supply of necessities to the community.

Since 1844, whenever coöperators argued the justice of communal ownership of the means of production and distribution of domestic requirements, they did better work than they knew, because, for every coöperator they made, they made three municipal reformers. The great advance in municipalization of water supply, gas, electricity, and tramways was made easy by the collective and united action preached and practiced by coöperators.

Every customer in a coöperative store is, or may become, a part owner of the business. By paying £1 (\$5) down, or agreeing to pay it by installments, anyone may become a member, entitled to receive a fair rate of interest on their capital, full dividend on purchases, and a voice in the management of the affairs of the society, including the election of the committee.

In addition, membership of retail stores makes one a part owner of the Coöperative Wholesale Society (Ltd.), the immediate subject of this sketch.

As stated in its rules, the objects of the Coöperative Wholesale Society are to carry on the trades or businesses of wholesale dealers, bankers, shippers, carriers, manufacturers, merchants, cultivators of land, workers of mines, and insurers of persons and property. This is a comprehensive list, certainly, and shows how coöperators have carried into practical effect this sentence, occurring in the first prospectus of the society in 1863.

The object of the society is to bring the producer and the con-

sumer of commodities nearer to each other, and thus secure the working classes those profits that have hitherto enriched the individual.

Statistical position of the Coöperative Wholesale Society June, 1911 may be briefly stated as follows:

Share capital (paid up).....	\$9,011,135	£1,802.22
Loans and deposits	19,685,055	3,937.01
Reserve and insurance	7,185,150	1,437.03
Net profits for the year ended		
June, 1911	2,519,235	503.847
Sales for the year ended June,		
1911	(\$134,158,150)*	26,831.630
	=====	=====

Membership of the Coöperative Wholesale Society is open only to societies and companies registered under the industrial and provident societies act or the companies act, subject to admission by the general committee, and sanctioned by a general meeting of delegates. In actual fact, the members of the Coöperative Wholesale Society are retail distributive societies, with a few productive societies, and the ordinary limited-liability company is not admitted. No individual can be a member in respect of holding shares or making purchases from the society. Each society becoming a member of the Coöperative Wholesale Society, has to take up one five share lot for its own five members, which gives a uniform distribution of share capital of one per head of the membership of the share-holding societies.

The system of representation is about the most equitable that could have been devised, each society having one vote for every 500 and part of 500 members it possesses. This gives even the smallest societies one vote, while a society with, say, 8,700 members would be entitled to 18 votes in elections and to send 18 delegates to quarterly meetings.

The management is vested in a general committee of 32, including 5 representatives from the Newcastle district and 8 from the London district. This general committee is responsible to the quarterly meetings of delegates from the various share-holding societies.

All members of committees are elected for two years, and are eligible for re-election.

To save time and secure the greatest attention to details of work, subcommittees are appointed for dealing with finance, production, grocery, drapery, etc., each of which reports to the general committee.

The accounts are audited half yearly and quarterly meetings held, two to consider balance sheets and reports, and the other two to consider only a general report from the committee on the quarter's working.

After the expenses of management, depreciation, and interest at fixed rates on share and loan capital have been paid, the remaining profits are divided among the members in proportion to their trade, after such sums as the quarterly meeting may determine have been put aside for reserve fund, charitable donations, and grants to relief funds.

Cash trading is a fundamental principle of the Coöperative Wholesale Society, both in buying and selling.

The bulk of the general trade of the Coöperative Wholesale Society is done in goods bought by the society's buyers at home and abroad and distributed to the retail societies from its warehouses, or, in the case of very large consignments of certain articles, sent direct to the retail society from the manufacturer or port where landed. Large stocks are held in Manchester, Newcastle, and London in the grocery and provision, drapery, woollens, boot and shoe, and furnishing warehouses, from which the orders of societies in these districts are executed. The stocks of bacon, hams, and canned goods from America are held in great warehouses at the ports of arrival, and on the receipt of orders at Manchester, Newcastle, or London, the heavy orders are sent direct, while small and mixed orders would be executed from the local warehouses.

One general principle runs through all the purchasing done by Coöperative Wholesale Society buyers, namely, to go direct to the source of production, whether at home or abroad, so as to save the commissions of middlemen and agents. For some articles, such as tea and coffee, there is, of course, a definite market, where the whole supply is put up at auction by brokers, and in

such cases the Coöperative Wholesale Society buyer has to take his place with the rest of the world and bid for what he wants. The home buyers of the Coöperative Wholesale Society usually have samples offered to them by manufacturers but in some branches of trade they have to visit special markets. The millinery buyer has to go to London and Paris at certain seasons. The buyer for dried fruit goes to Greece in the autumn and thus secures the pick of the crop by calling on the largest growers and paying cash on delivery. In New York, Montreal, Spain (Denia), Aarhus, Esbjerg, Odense, and Copenhagen, in Denmark, Gothenburg, in Sweden, the Coöperative Wholesale Society has purchasing depots with resident buyers, whose office it is to purchase and ship home the productions of these countries as required by English coöperators. On arrival in England the goods are divided among the warehouses at Manchester, Newcastle, London, Liverpool and Bristol. Samples are then placed on view in the various salesrooms of the wholesale at Manchester, Newcastle, London, Birmingham, Bristol, Cardiff, Leeds, Huddersfield, Blackburn, Northampton, Nottingham, etc., so that buyers from the retail societies can at once see them and place their orders.

The total amount of the goods imported direct by the Coöperative Wholesale Society from foreign countries in the 12 months ended December, 1910, was £7,072,470.* The chief items that go to make up this total are as follows:

Products	Country	Amount
Sugar, bacon, lard, wheat and canned goods	America	£1,101,181
Tallow	Australia	128,891
Sugar, flour, boots, furnishing goods	Austria	427,688
Cheese, bacon, butter, leather	Canada	412,139
Butter, bacon, eggs	Denmark	3,545,469
Sugar, dried fruit, fancy drapery and furnishing goods	France	67,561
Sugar, green fruit, eggs, fancy goods	Germany	363,619
Dried fruit	Greece & Turkey	268,629
Rice, cheese, yeast and margarine	Holland	166,131
Butter, eggs, timber	Sweden	492,770

* £1 equals \$4.86.

While considering the present state of coöperative production as carried on by the Coöperative Wholesale Society, certain gen-

eral facts must be noticed. Coöperators have undertaken production solely to supply certain of their own needs. The goods made by the Coöperative Wholesale Society are made not to be sold for profit, but to be consumed by the proprietors of the factories where they are produced. Though one hears of Coöperative Wholesale Society goods being bought and sold, and of profits made on them, it is of the utmost importance in studying certain aspects of the Coöperative Wholesale Society production to remember that neither in the Coöperative Wholesale Society nor in the distributive store are the goods "sold" to the members at a "profit" as we understand these terms in the world of competitive trade. When the Coöperative Wholesale Society sends boots made at Leicester to a society and the latter hands them to a member, there is no "sale" or "barter" in the economic sense, but merely a process of distribution. The man who gets the boots, being a part owner of the Coöperative Wholesale Society factory, the Coöperative Wholesale Society warehouse, and his local store, was really the principal in the transactions where the leather was bought and the labor hired for putting it together. He deposited a sum represented by his share capital with certain agents or employees of his who undertake to supply him with a pair of boots when he wants them. When he takes the pair of boots from his local store, he reduces the amount of his deposit with these agents by the value of the boots, and his payment when he obtains them is really making up that deposit to what it was before, with a small sum added, which at the quarter end he may either withdraw or allow to remain in their hands. That he should choose to call his payment at the time of taking the boots the "price" of them, his taking of them, the "buying" of them, and the extra sum added to his deposit account with his employees the "profit" on them, should not be allowed to mislead us as to the real nature of the transactions involved. In ordinary commerce the manufacturer, the shopkeeper, and the customer are independent, free to buy or not to buy, to sell or not, and free to fix prices. A little consideration will show how different coöperative trade is in these particulars.

The bank is another important branch of the Coöperative

Wholesale Society, and its turnover in 1910 amounted to £136,515,610 (\$682,578,050).

The wholesale also carries on the business of shippers, having steamers employed on the continental service.

The various productive works of the Coöperative Wholesale Society are situated in England, with the exception of the creameries and bacon factory in Ireland, a bacon factory at Herning, Denmark, and a tallow and oil factory in Sydney, Australia, the latter being a subsidiary to the soap, and other works at Irlam, Silvertown and Dunston. In the case of the more important factories, sites have been chosen because of the geographical position, the objects being the ready supply of raw materials, the quick dispatch of goods, the neighborhood of the retail stores to be supplied, or the existence of a supply of skilled labor.

The output from the Coöperative Wholesale Society factories in 1910 came to over £6,500,000 (\$32,500,000).

An important feature of the productive work carried on by the Coöperative Wholesale Society is the consideration of the worker, shown by the commodious factories, with the generous allowance of light and space. Visitors to these works are invariably struck by the order and cleanliness of the rooms, but it is practically in the conditions attendant upon the employment of women and girls that the contrast is apparent between the workers toiling long hours at low rates and the employees in Coöperative Wholesale Society factories.

Taking Manchester, for instance, a visitor may find at Balloon street a group of enormous warehouses covering one of the largest sites in the city. The new administrative block fronts Corporation street. A beautiful meeting hall—the Mitchell Memorial Hall—is situated over the offices and board room. The dining room for employees and visitors, capable of accommodating 800 persons, is worth a visit in more senses than one.

In other parts of Manchester and the immediate vicinity are to be found several important factories. At Broughton, besides a furniture factory, there is a group of clothing factories employing over 1,300 hands. Nearer to Balloon street is the tobacco factory, with a staff of over 680, from which factory £690,930 (\$3,454,650) worth of tobacco, cigars, cigarettes and snuff were sent out in 1910. At Longsight there is a printing works, both

letter press and lithographic, with a large box-making plant, employing over 1,000 hands. At Trafford Wharf, on the ship canal, besides a transit shed and bacon factory, there are the Sun Flour and Provender Mills, said to be the largest in the Kingdom. Another large flour mill is situated in Oldham. At Crumpsall we find the biscuit, sweet, and cake factory, the output from which reached nearly £190,000 in value in 1910. At Middleton Junction, near Oldham, the jam, pickle, and vinegar works are situated, where jam, pickles, preserves, vinegar, candied peel, marmalade, etc., are manufactured.

At Irlam, on the ship canal, we have the soap, candle, starch, and lard works, where nearly 300 tons of soap and over 50 tons of candles are turned out every week. Auxiliary soap works have been erected at Silvertown-on-Thames and Dunston-on-Tyne. The oil and tallow works at Sydney, N. S. W., supply much of the raw material for these works. At Bury there is a large weaving shed, employing about nine hundred looms on calicoes, dress linings, sateens, and similar fabrics. At Littleborough flannel is made, and at Batley the wooden mill produces cloth and tweeds.

Newcastle-on-Tyne is a replica of Manchester in many respects, the offices and warehouses being situated in and about West Blandford street. At Pelaw-on-Tyne there is a group of works comprising drug and sundry clothing, printing, furniture, and engineering works. At Dunston there is a huge flour mill and near by soap works already referred to. At Hartlepool there is a lard factory.

London, again, like Manchester and Newcastle, has its blocks of warehouses, with offices, meeting hall, dining rooms, etc., and in the immediate neighborhood various factories. In Leman street, E., opposite the offices, is the great tea warehouse which belongs jointly to the English and Scottish Wholesale Societies, and which does the largest tea trade in the world, sending out every week for coöperators' consumption about two hundred tons of tea. Under the same joint ownership are three large tea estates — Nugawella, Welignanga, and Mahavilla, in Ceylon, and the cocoa and chocolate works at Luton, in Bedfordshire.

At Silvertown, on the Thames, there is another great flour mill, and on land adjoining are works for the preparation and packing

of various grocers' sundries, dry sweets, etc., and soap works referred to previously.

Next in importance to the three great centers at Manchester, Newcastle, and London comes the Bristol depot, which is a source of supply for societies in the west and southwest of England and Wales. A fifth flour mill, at Avonmouth, was in 1910 opened in this district.

The largest factory owned by the Coöperative Wholesale Society and the largest of its kind in Great Britain, is the Wheat-sheaf Boot Works at Leicester. Other boot factories at Duns Lane (Leicester), Hockmondwike, Rushden, and Enderby bring the total output to over 2,000,000 pairs in a year. Nearly 2,800 persons are employed in the boot trade.

There is a large hosiery factory at Hucknall Huthwaite, near Nottingham. At Leeds is to be found a large brush and mat works; also a clothing factory for the ready-made trade. At Desborough a corset factory employs 280 hands.

In 1908 the productive societies formerly known as the Dudley Bucket and Fender, the Keighley Iron Works and the Birtley Tinsplate were taken over by the Wholesale. At Keighley bedsteads, wire mattresses, washing and wringing machines are made.

In Ireland there are purchasing depots at Limerick, Tralee, Cork, and Armagh. Two bacon factories, at Tralee in Ireland, and Herning in Denmark, bring us nearly to the end of our list of works and factories.

At Roden, near Shrewsbury, the Wholesale has an estate of nearly 800 acres, of which 200 are under cultivation, chiefly fruit. There is a very fine mansion on the estate—Roden Hall—now used as a convalescent home for coöperators and their families. Another fruit farm is situated at Marden, near Hereford, and consists of nearly 150 acres.

A crockery depot at Longton, in Staffordshire, is responsible for supplies of china and earthen ware, much of it being decorated by the society's employees.

Coöperation has already shown that it has some great principle of life within it which makes it grow steadily. It makes an appeal to the cool reason of man, unlike the hot pride and passion

of war and the enthusiasm of religion. That such an appeal is in keeping with the spirit of our day one may see by the steady growth of opinion in all civilized countries in favor of peace and the recognition of the truth that the prosperity of each nation depends, not on the poverty but on the prosperity of its neighbors.

The International Congress of Coöperatives, held every alternate year, like that of the trade unions, helps enormously to promote good feeling between the workers in different lands who are in the majority in every population. It is a great pleasure to English coöperators to be able to help, from time to time, when inquirers come seeking for practical advice and information in regard to the British phase of the movement.

MARKETING IN FRANCE

Sale Direct from Producer to Consumer

This ideal system is constantly increasing in popularity through the facilities offered by parcel post and express service, particularly for delicate and high priced fruits and flowers. Hot house varieties are shipped in cartons or light baskets which need not be returned. Early outdoor fruits, eggs, butter, etc., are also shipped directly to the consumer in considerable quantities in wicker baskets, which may be suspended from wires in the car or crated and supported on shelves during transit. International postage and express rates prevail.

Large individual producers and coöperative selling associations are able to make direct contract to supply the army, hospitals, prisons, public institutions of all kinds and large private establishments, wholesale and jobbers, restaurants and hotels. This method of selling is developing in direct proportion as the producers become organized and standardize their produce.

Producers and Consumers' Markets — Intermediaries

The old way was for the farmers in each commune to sell their produce to traveling collectors or shipping merchants in the local village market. These intermediaries would then grade, pack and ship the produce to the provincial cities and even to Paris. They sometimes consigned the shipment to wholesale merchants at an agreed price or to the official auctioneers on a commission, such as

those called "mandataires" at the Halles in Paris, or "facteurs" in the municipal markets of other cities. They also consign to private commissionmen.

Frequently the large city produce dealers send their agents out into the country to buy and ship to them. These methods are being superseded by producers' coöperative associations which act as their own intermediaries, even sending representatives to the great foreign centers of consumption to look after the marketing of their produce. As a result, the intermediaries of the old regime are vying with one another to render good service to save themselves from elimination. Important producers' markets are still in operation at the producing centers, that at Chateau Renard near Avignon, is open every day in the year from 11 p. m. to 3 a. m. Here 150 shipping merchants, agents and commissionmen buy, grade, pack and ship the produce which is trucked in by the farmers. The produce is loaded on the cars and shipped away to all parts of Europe, the trains sometimes leaving before breakfast and always before noon.

The French farmers are extremely individualistic and pride themselves on their independence, but they are coming to see that it is better to act collectively than individually. Certain market days are devoted principally to the sale of cattle, others to vegetables and fruit, and after the sales are completed Chateau Renard takes on an appearance almost like that of a county fair, particularly after the more important market days.

Consumers' Markets

Every town and city has its municipal market or market place where the producers and consumers may meet and where the city purchaser may buy on nearly as good terms as the dealers. Important cities like Rouen and Lille, Roubaix, Lyon and Bordeaux, all have well regulated covered markets under municipal control, similar to the Halles Centrales in Paris. In Paris there are numerous other covered and uncovered markets, mostly under police supervision, although some are under the private management of individuals or societies — these are not subject to the same laws as the Halles, but most of the produce handled by them has been first sold there. The

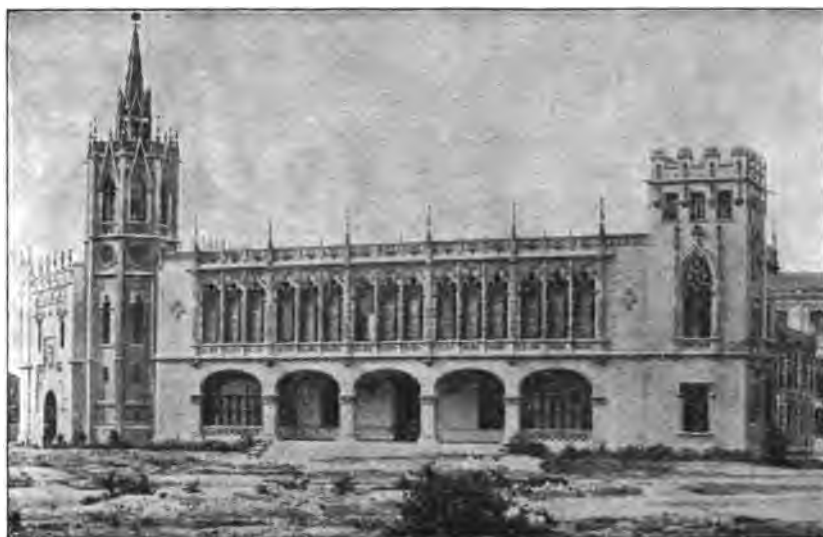


FIG. 182.—THE CITY HALL, VALENCIA, SPAIN.



FIG. 183.—COVERED MARKET, BARCELONA, SPAIN.

Marche Lenoir, near the terminal of the Lyon's railroad, however, receives its produce directly from the centers of production.

All these markets supply the retail trade and there is a considerable fruit and vegetable distribution conducted by pushcarts. They play an important part in disposing of surplus stock from the Halles Centralles and the other markets.

They buy at bargain prices and induce consumers to purchase by exhibiting their produce on the streets, carrying it to the doors of the poorer classes and selling at low cost. They serve as a valuable adjunct to the market system by preventing stock from being carried over from one day to the next. If it were not for them much unsold and inferior produce would accumulate in the markets, and even spoil. It is a great convenience to the laboring classes to have this low priced food brought to their houses by the pushcarts.

There is a coöperative wholesale society in Paris, and many coöperative retail stores, and in most of the Provincial cities there are coöperative purchasing agencies of consumers and coöperative stores.

They deal in all kinds of commodities, from coal and hay to groceries and clothing, and generally sell a little better produce at the same prices, or equally good commodities at a slightly less price than the other stores. The profits are divided at the end of the year among the members in proportion to their purchases.

Owing to the excellent marketing system which prevails through the regulations of the municipality of each city, and these coöperative purchasing associations, the cost of getting commodities from the point of arrival in the cities to the consumers is kept down to about one-half of that which prevails in our American cities. The private dealers, not under municipal control, are forced by the competition with the open market system to adopt efficient methods of distribution and content themselves with reasonable profits; as a result some large private distributing companies are performing a very satisfactory service.

THE "HALLES CENTRALLES" OF PARIS

This central market of Paris and also of the whole of France is of very great importance because it serves as a reliable and

open market for the produce from all parts of the country. It acts as a price regulator for all the other markets of France and also as an open meeting place for producers and consumers.

The organization and operation of the Halles Centralles is regulated by the law of June 11, 1896, and the decree of April 23, 1897, which have established it as a primary market for sale at auction or by agreement for food products in wholesale or semi-wholesale lots.

The sales must be made for each kind of produce in the pavilion assigned to it, and the total area of these pavilions amounts to more than 22 acres and they are situated at a central point in the city, convenient to the bulk of the consumers.

The pavilions of the Halles Centralles which are of structural steel construction, well lighted and ventilated and provided with every sanitary convenience, and with storage cellars, are so situated to one another as to best facilitate the receipt and handling of produce. Two of them are devoted to the sale of meat, one for poultry and game; three for fruit and vegetables; two for fish and two for butter, eggs and cheese.

Other miscellaneous classes of farm produce are sold on the sidewalks around the pavilions. Each pavilion has also a department where the consumers may come and buy directly at retail, thus serving as a regulator for the retail prices throughout the city.

The Carreau Forain, or uncovered market, reserved for the fruit and vegetable raisers who sell their own produce, is situated contiguous to the covered pavilions and is reserved exclusively for farmers, not persons who have bought produce at wholesale in the Halles ("regrattiers"). This space is occupied by farmers and market gardeners of the country surrounding Paris, who truck their produce directly into the city, and by persons who have purchased and brought in produce either in large trucks or in railroad shipments through the Halles, which they have acquired from the small farmers who have not enough individual produce to permit them to bring it into the market severally.

Reselling being prohibited, no one can use this market for produce bought within the perimetre of the Halles.

The law expressly states that all owners of food stuffs offered for sale have the right to sell for themselves. This is quite prejudicial to the interests of commission men and intermediaries who find their opportunities for making an exorbitant profit considerably reduced. The law is explicit in defining the qualifications of those permitted to sell in the Carreau Forain — they must justify or account for the origin of their produce by supplying upon its arrival, either a bill of lading indicating their name, address, etc., from the railroad, or if it has come in in trucks, the number and receipts when entering into the city from the city custom officials "octroi." In any case their name and address and source of their produce must be furnished.

The grouping together of the producers for the collective sale of their produce is permissible and the first step in this direction was made by the association of shippers to the Halles Centralles, which obtained from the police department a free permit to sell as a "Mandataire" without an intermediary.

This coöperative farmers association for the shipping and sale of its produce has enjoyed a benefit from the free post in the Halles Centralles worth three times as much as the amount of its paid up capital.

The management has established a certain percentage to be prepaid on the produce for sale, to cover the expense of admission duty into the city unloading charges, storage and commission, and which is very much less than that which the ordinary mandataires have to pay. The saving is divided, pro rata, among the shippers in proportion to the value of their shipment. The example of this coöperative association has been followed by many others and is an excellent example in efficiency.

Regulation of Sales—The (Mandataires) Official Licensed Auctioneers

Sales in the Halles Centralles are subject to very strict regulations which it is important to consider. The mandatarie is an intermediary official who must observe the provisions of the law and whose operations are controlled by the department of police. He must deposit a sum of at least \$1,250 or furnish a bond in proportion to the importance of the business which he handles,

and shippers are thus guaranteed to this extent as well as by the moral guarantee given by the police department.

The mandataires may sell the commodities which are consigned to them either at public auction or by agreement with their shippers direct. They must conform in this respect to the instructions accompanying their consignments and all produce shipped to them must be brought to the Halles Centralles and sold at the post placed at their disposition.

The mandataires are responsible for all merchandise consigned to them, and credit which they may allow to purchasers is at their risk and in no wise excuses them from the obligation to pay the shippers without the least delay.

Mandataires Can Not Speculate or Act as Wholesalers

Mandataires are expressly prohibited from acquiring for their own account the produce consigned to them to sell, or any other produce similar to it; neither can they themselves, or persons interested with them, deal in produce within or without the Halles; nor can they possess at Paris, in the Provinces or in any foreign country, stores or receiving stations. They can not claim remuneration other than the commissions due them from their clients, which commissions include all expenses except duties or tariffs.

Mandataires deduct from the amount of their sales the expenses, tariffs and commission due them.

The tariffs common to all sales at wholesale or in half lots, are as follows: Railroad freight; cartage; import duties; municipal duties; special duties (d'abri); public weighing; telegrams and postal charges; pay to the porters; unloading and sale; storage charges when storage is resorted to.

The special expenses for the several classes of sales are as follows: For the sale of meat: the regulation duty (d'usage materiel) and the salary of the individuals who cut up the meat (découpeurs); for poultry and game: inspection and shrinkage (gavage); for butter, eggs and cheese: the salary of inspectors and reductions made for deterioration or reduced rating.

The mandataires must be prepared to furnish a justification for all expenses attached to their sales. Any producer having at

his disposition a knowledge of the duties of mandataires, and desiring to have his produce sold at the Halles Centralles, may send to the police department for a list of those mandataires charged with the sale of his kind of produce. He then makes a choice of one of those listed and comes to an agreement with him as to the manner in which the sales are to be made.

Selling Operations

Sales are made by the mandataires or his salesmen, either by calling the price at public auction or by agreement, and the presence of the mandataire at his post is required by law during the selling hours.

Each post is provided with a record book with duplicate leaves for recording sales; the first leaf accompanies the lot sold until it has been removed from the building and is finally turned over to the chief inspector by the porter. The second leaf, destined for the shipper, must record, besides the selling price, all the other expenses (transportation, duties, unloading and storage charges, fees to the porter, charges for opening packages, etc.), thus the sum of the commission, including all accessory expenses, are on record. In case of several sales made on the same day in the name of the same shipper the record destined for him may be replaced by a statement recapitulating all the data from the individual pages.

The mandataires are required to send on the day of sale copies of all the record pages relative to the sale by them of products to the person who shipped them.

The sales are announced in a loud voice and immediately inscribed in the record book with their number and stamped by the police department. The name of the shipper and that of the purchaser, the number of packages, the kind of produce, the gross weight, the "tare," the net weight, the manner of sale, the rate of sale (price) per unit of measure, and the net amount of the sale are all recorded. For sales by the piece or by the dozen these indications are used in place of the weight.

The record book (*souche*) remains in the hands of the mandataire and serves as a basis for his bookkeeping; that is to say, the account of his sales.

After the sale the mandataire makes up his accounts and sends them on the same day to the shipper, which must include the details of the sales made, all the expenses and the net proceeds by the day. Charges are also allowed on certain produce like fruits and delicate vegetables for special care given to them in transport and in handling.

The mandataire sums up each day on a register called "italien" the account of the sales for the day, summarizing also all his operations. The account book required by law is verified from time to time by the police inspector who, being provided with all the original leaves from the sale book, are able to check up completely each day's sales of the mandataire. The details and the totals have to be exactly the same on the register of the mandataire (italien); the leaves of this register are numbered to correspond with the original and these latter (originals) filed with the special commissioner of the Halles Centralles.

In virtue of articles 28 of the decree of April 23, 1897, the mandataires are required — unless there is an agreement to the contrary, to mail the sum due for the day's sales on the same day or the day following at the latest, to each shipper.

The record of sales is required to be kept by the mandataires for three years and his original sales book and other accounts must be preserved for that length of time.

All persons who have shipped merchandise to the Halles, may, during a period of three years, transmit to the police department, for the purpose of verification, the statements which have been sent to them by the mandataires.

The Establishment and Publication of Quotations

The quotations are established in each pavilion, by a commission composed of the head inspector and three mandataires chosen by their colleagues. They consist of the maximum, a minimum, and an average quotation for each product.

Mandataires are prohibited by law from sending to the shippers other quotations than those established in the manner above referred to.

An official record with an extract of the quotations for the day and general comments on the market is published in the form of

a circular and may be obtained by mail at a cost of 1/5 of a cent postage.

At the close of the day's sales the *prefet* of police has posted each day at the Central Bureau of Inspection the quotation for each kind of produce with a note of the source from which it came.

Unclaimed Merchandise — Produce Carried Over

Merchandise which has not been claimed before the opening of the following market day, together with what has arrived at the Halles unconsigned, is sold under the hammer as abandoned merchandise by one of the *mandataires* designated according to a rule of the police department, and the net proceeds of the sale are paid over to the credit of the *mandataire* in the care of whom the first sale was made. If the merchandise goes at a higher price than that of the day preceding, the *mandataire* must turn over the difference to the shipper.

Only such articles of merchandise can be carried over to the next day as has not found a buyer or which has arrived too late for the market.

There are two police departments, one of the Seine and the other of the city, and a declaration has to be made to each of them giving the name and address of the shipper, the character of the merchandise, the number of parcels or pieces and also the reason why the merchandise has been carried over from one day to the next. Such merchandise can not be mixed with the produce of the day, but must be sold separately.

Defective Produce — Indemnity

In case the produce is defective or lacking in quantity at the time of delivery, official inspectors are on hand and may be called by the *mandataires* to decide the amount of deterioration, or to analyze any defective produce, thus protecting all parties from abuse due to the statement which might be made by *mandataires* that a whole consignment is defective and unsaleable when such may not be the case. The *mandataire* makes a record on the register of the railroad company, and then sells, at the quotation of the day, the marketable part of the consignment and remits to the shipper the proceeds from the sale and whatever he has been able to realize on the deteriorated or defective part of the consign-

ment. That is, he leaves out of account the lacking part of the consignment.

The railroad company, taking account of the claim of the mandataire, allows him a certain indemnity for loss or damage in transit. The courts have allowed this right of the mandataire to indemnity under such conditions, and such indemnity when realized by the mandataire must be credited to the shipper. It must be recalled that the mandataires are responsible to the shippers for all merchandise sent to them, but concerning the indemnity for deficiencies it is well for the shipper to have an agreement with the mandataire for a compromise, permitting him to reclaim damage from the railroad, unless he prefers to let the mandataire attend to it.

Rules for Accounting — Remittance of Funds

The shipper has the right to choose the arrangement most convenient to him, so as to reduce the cost of remitting funds, for daily remittances are sometimes heavy and troublesome for him. He may be paid according to his convenience by postal money order, bank draft, express order or check on the date fixed by him: weekly, monthly or at the end of the shipping season.

All shippers who desire to fix a minimum price for their produce must do so by letter or telegram addressed to their respective mandataires before the opening sales for the day.

QUOTATIONS FOR JULY 2, 1913

Wholesale prices of meats and other products, as sold at public auction in wholesale quantities in the Central Market of Paris.

BEEF

Hind quarter, 14 55/100 cents per lb.	} Average, 12 cents.
Fore quarter, 9 9/100 cents per lb.	
Sirloin steak, 21 82/100 cents per lb.	
Porterhouse, 23 64/100 cents per lb.	
Roast, 17 82/100 cents per lb.	
Lower round steak, 13 62/100 cents per lb.	
Hock and neck, 6 36/100 cents per lb.	

VEAL

Extra quality, 18 73/100 cents per lb.	} Average, 15 58/100 cents per lb.
Prime, 16 32/100 cents per lb.	
Second, 14 55/100 cents per lb.	
Third, 12 73/100 cents per lb.	

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MUTTON

Prime quality, 20 91/100 cents per lb.	}	Average, 16 82/100 cents per lb.
Second quality, 18 18/100 cents per lb.		
Third quality, 15 45/100 cents per lb.		
Fourth quality, 12 73/100 cents per lb.		

PORK

Norman, extra fine, 18 18/100 cents per lb.	}	Average, 16 58/100 cents per lb.
First quality, 17 cents per lb.		
Second quality, 14 55/100 cents per lb.		
Bacon, loins, 18 73/100 cents per lb.		
Cutlets, pork steak, 20 91/100 cents per lb.		
Hams, 21 82/100 cents per lb.		
Shoulders, 14 55/100 cents per lb.		

POTATOES

Unsorted in sacks, 90 cents per bu.
Select quality, sorted, \$1.20 per bu.

BUTTER

"Charentes Creamery," 23 cents per lb.
Ordinary, 20 cents; first quality, 30 cents per lb.

EGGS

22 to 31 cents per doz.

FLOUR

\$6.72 per 200-lb. barrel.

SUGAR

\$5.64 per 200-lb. barrel.
Refined, in packages, 6 cents per lb.

WHEAT

\$1.53 per bu.

"LA VILLETTE"

PRINCIPAL MUNICIPAL ABATTOIR OF PARIS

An idea of the importance of this abattoir, which serves as a price regulator for the whole of France, may be had from the fact that its main building is capable of handling 7,000 beeves, 33,000 sheep and 8,000 hogs daily. Its properties cover 112 acres. Shipments are received of live cattle from all parts of France and the Provinces in Africa. There is a considerable fluctuation in the number of cattle slaughtered, according to the season of the year and the state of the weather, and the prices vary somewhat, according to the supply and demand, and the complete list of quotations is published daily.

Operation of the Market

Most of the animals pass through the hands of commission men who are listed in the "Butchers Annual" of Paris, although the Central Syndicat of the farmers of France has special agents charged with the sale of animals coming from their members in the provinces to prevent abuses.

Although the market is in operation every day in the year, Mondays and Thursdays are the most important for large animals and Tuesdays and Fridays for small animals.

The animals are shipped in in carload lots, averaging 10 steers, 20 calves, 50 or 60 sheep and 30 hogs per car, the freight amounting to an average of \$11.50 per car for 100 miles. On arrival at La Villette the animals are unloaded by employees of the persons to whom they are consigned, or by special agents representing the shipper.

The owners of the cattle may accompany them and do their own selling, but they usually find it more profitable to employ an agent who is familiar with the market.

A foreman of La Villette is in charge of the unloading and reception of cattle and attends to their stabling and care up to the moment when they are offered for sale, when the shipper or his agent may proceed to make the sales. Special trucks are provided for carrying calves to the market, also for sheep and hogs.

The several expenses prior to sale, chargeable to the shipper are as follows: Ten to 20 cents a head for cattle, 10 cents for calves, 4 cents for sheep and 6 cents for hogs. The charges for placing on the market and disinfection are as follows: Entrance fee per head for beeves, 60 cents; cattle and hogs, 20 cents; sheep, 6 cents. Disinfection charge per head for cattle, 5 cents; calves 2 cents; sheep, 5 cents; hogs, 3 cents. Municipal duty for entrance into the city of Paris, 90 cents per 100 pounds, live weight.

Variable Charges

The variable charges include maintenance, weighing and slaughtering fees. When animals remain at the market for any reason, such as awaiting a favorable occasion for sale, the owner *has* to pay: for beef cattle, 20 cents; calves, 4 cents; hogs, 2 cents;



FIG. 184.— FIGHTING BULLS AT PASTURE, SPAIN.



FIG. 185.— DEEP PLOWING, SPAIN.

sheep 1 cent for feed per day. When they remain from Monday to Thursday the maintenance charge for beeves is \$1.80; calves 40 cents; sheep, 36 cents; hogs, 26 cents, covering both care and feed. If they remain from Thursday until Monday the charges are: \$2 for beeves; 50 cents for calves; 36 cents for both sheep and hogs. These expenses, as above given, are averages and may vary according to the price of forage and are established by the management of La Villette. Weighing fee: This charge for the official weighing on the municipal scales, amounts to about two cents per 100 pounds for all kinds of animals. The slaughtering fee is fixed at about two cents per 100 pounds live weight. There is also the duty on dressed meat for entrance into Paris, amounting to about one dollar per 100 pounds. These charges are paid by the retail butcher in Paris.

Organization of Sales

It is to the interest of the producer to sell promptly because the maintenance fees, fatigue of the journey and change of food and surroundings cause a notable loss to the animals if they are carried over to the following day.

Price Determination

The quotations of the market record both the live and dressed weight, although sales are always made on the basis of live weight, except for hogs. Beeves are sold both by the head and in lots, and purchases are made as at fairs, after a superficial examination to estimate the condition of the animal. They are classified as in good flesh, fat, and extra fat. After examination the purchaser and seller discuss the price, when sold the purchaser marks the animals and from the agreed price an estimate is made of the rate to be paid per 100 pounds, and this is applied to animals sold in lots, on an average, and is the price which is put on record in official quotations. The sales begin at 10:30 in the morning and continue until 1:30 P. M., and for steers it continues open until 3.30 P. M. Commission for selling: This varies from 50 cents to \$1 a head. The proportion of dressed weight to live weight ranges from 50 to 65 per cent., sometimes reaching 70 per cent. for extra fat cattle, and the

difference between the value of the by-products, other than dressed meat and the general expenses, amounts to \$4.25 on an average. Calves dress to 62 per cent of the net weight and are sold for a commission of 40 cents per head; sheep dress from 40 to 50 per cent. of the live weight, the selling commission being 6 cents per head. Hogs dress as high as 75 per cent. of their live weight and are sold for a commission of 40 cents per head.

The wholesale prices in Paris in July, 1913, were as follows: Beeves, live weight; low 5.73 cents, high 9.91 cents — average 7.82 cents per pound: dressed weight; low 11.45 cents, high 16.55 cents — average 14 cents. Calves, live weight, low 7.45 cents, high 13.09 cents — average 10.27 cents per pound: dressed weight; low 13.64 cents, high 21.82 cents — average 17.73 cents. Sheep, live weight; low 7.27 cents, high 14.63 cents — average 11 cents per pound: dressed weight; low 14.55 cents, high 24.36 — average 19.45 cents. Hogs, live weight; low 10.91 cents, high 12.73 cents — average 11.82 cents per pound: dressed weight; low 15.64 cents, high 18.17 cents — average 16.90 cents. The average prices at auction sale in Central Market of Paris were as follows: Beef, No. 1 ribs, 17.82 cents; loins, 21.82 cents. Pork, 16.58 cents per pound; mutton 16.82 cents, and veal 15.58 cents.

CONCLUSIONS

A more perfect business organization of all operations relating to the production, standardization, packing, transportation, wholesale and retail marketing, and delivery of agricultural products was observed in all the European countries than that which is vogue in America. A greater average yield per acre results in European farming from more scientific methods of cultivation, and American farmers can also learn something from those in Europe concerning the conservation and utilization of natural resources, and in general neatness and artistic appearance of the whole country.

DIFFERENCE IN CONDITIONS

In so far as the possibility of better business methods is affected, the difference in conditions between European countries and America is greatly exaggerated, and there is no good reason why, if American farmers employ as good methods, they may not obtain equally good results. For example, engineers and contractors all over the world apply the same general principles in building bridges, docks, railroads and canals, utilizing such labor and material as are at hand, importing the rest, and conducting their business in a systematic way. When such countries as Germany and Denmark first demonstrated what could be accomplished by agricultural organization as applied to production, transportation and marketing of their produce. Many people in adjoining countries said: "Their conditions enable them to do it, but our conditions are not identical." The fact is that, the natural fertility of the soil in these countries was unusually poor and the markets at first unorganized. The difference in conditions in the countries, such as France, which have since adopted better business methods, has not stood in the way.

COMBINED VS. INDIVIDUAL OPERATION

The economies and profits which result from combined operation, and the inability of individuals to compete with combinations, need no proof. Many individual manufacturers of agri-

cultural machinery have been forced into combining by competition with other concerns larger than themselves, or by other combinations. So far as system and economy are concerned the joint stock corporation which divides its profits among a few at the head, is as good as any. However, the coöperative form of combination is equally effective in securing economies, and is of greater benefit to all concerned because the profits are distributed among all those who contribute to making them, in proportion to their contribution. Thus it is observed that any form of combination is more economical than individual operation, and in some cases the price to the producer has been increased and that to the consumer reduced by joint stock corporations, such as that of the Maggi Company, which supplies milk in Paris, but the tendency is, under this form of organization, for the profits to be enjoyed largely by a few people, and for this reason the coöperative form is preferred throughout Europe.

SYSTEM AND EFFICIENCY

There are excellent examples of this in the operation of railroad and manufacturing concerns and in the efficient distribution of mail. The handling of produce may be done in a similar manner. There is a parallel in the case of work done by contract. For a long time construction work was carried on in the same aimless way as production and distribution of farm commodities, but within the last few years competition and scientific methods have resulted in the adoption of systematic business management on this class of work in all countries. Similar improved methods have been applied to the handling of farm produce in Europe.

STUDY OF EXISTING CONDITIONS

It is a good thing for farmers and consumers to know the facts about what happens in the various stages of transmitting commodities. If they inform themselves as to the most pronounced deficiencies and go about remedying them in a businesslike way, *instead* of leaving the matter entirely to the middlemen, the results *will* be greatly to their advantage. They will find that care in *standardizing* and packing goods, so that quality can be relied *upon*

upon by the consumer, can best be effected by forming themselves into associations and employing experts; and at the same time they can purchase their supplies at wholesale, maintain a market quotation service, and command better attention from transportation companies, etc.

AGENCIES FOR ORGANIZATION

Existing organizations, whenever they can be adapted, should be used as a basis for each new business venture, as in the case of the "Syndicat Agricole" in France. Each new line of business which producers or consumers find it to their advantage to undertake, may be carried on by an affiliated society with an independent system of accounts, so that each shall rely upon itself for its own particular operations, but may enjoy the prestige and general service of the parent society. It would seem that the granges in America should be well adapted to develop in a manner similar to like societies in Europe.

STANDARDIZATION OF PRODUCE

Consumers in large congested cities in which much overlapping and duplication of deliveries takes place, and many middlemen are occupied in sorting and repacking, could enjoy a great reduction in prices if all produce were properly standardized. Shipping and selling associations among producers can insure standardization and enjoy higher prices and a more steady demand thereby. The ideal is direct dealing between coöperative associations of producers and similar coöperative associations of consumers.

GOVERNMENT ENCOURAGEMENT

Without the moral support of the government it is difficult for farmers and consumers to improve their conditions. European governments, recognizing that agriculture has received less help than commerce and industry in the past, have recently been trying to help it to improve its organization. In many instances they grant tax exemptions, subsidies, and in some cases have arranged to place funds at the disposition of farmers at low rates of interest and easy terms of repayment. Although there is a feeling that this should not be undertaken in America, still, it would seem as

though it might not be a bad plan to consider some such system of inducing our farmers to reforest the more unproductive of their lands and to induce them to adopt other conservation measures. European experience demonstrates that the profit resulting from reafforestation amounts to an average of 3 to 5 per cent.; that very little return can be expected from the investment in less than thirty years, and that in many instances it takes from sixty to eighty years to get the full return. It is quite natural for farmers to hesitate about undertaking reafforestation, when they are unable to borrow money at less than 5 per cent.

LEGISLATION AND ITS ENFORCEMENT

It is difficult for individuals when they find that existing laws are inadequate to permit of their conducting their affairs in an efficient manner, to go about having these laws amended, or new laws passed, and when the laws are not being enforced individual complaints bear less weight than united protests. In this respect the European farmers' coöperative societies have been very helpful in bringing such matters before the authorities, so presenting and pressing their cause as to get satisfaction.

COÖPERATION

This form of business combination, although the most successful and satisfactory in all of the European countries, has first come about where a strong need for it has been felt and where people could not get along without it. Unions of laborers out of work and almost starving, or groups of farmers who could not purchase their necessities or sell their products economically enough to enable them to make a living, have afforded the inspiration for the establishment of coöperative societies. The more prosperous farmers in Italy, France and the British Isles, and even in Spain, held aloof for a long time and took little interest in coöperation, just as our farmers in America, as a whole, have been able to get along without it. *Recently*, even these more favored people have found that it is *difficult* for them to compete with large combinations or large coöperative societies, and those best informed in all countries are

coming to recognize that coöperation is the most equitable form of combination and that it is particularly well adapted to the needs of the producers and consumers of farm produce. The European governments have felt the necessity for some remedy to prevent the increasing and continuous emigration from their rural districts to their own cities and to America, and they have done much to encourage coöperation, although the most active propaganda work has been carried on by philanthropic individuals.

Coöperative purchasing societies among farmers for wholesale purchase of supplies; coöperative credit associations for short-time loans; land mortgage banks for long-term loans, etc., have materially reduced the cost of production to the farmer. Coöperative selling agencies and coöperative societies of consumers in the cities, have materially reduced the cost of distributing commodities, have eliminated great waste in deliveries and so benefit the consumer and the producer alike.

Federations of coöperative societies, aside from their coördinating value, have further benefited the producer and the consumer by bringing about legislation which has aided the farmer and improved marketing conditions in the cities to the advantage of the consumer. They have also secured better transportation conditions on the railroads.

We, in America, need to consider the advantage that coöperation will afford in developing community spirit, through which our natural resources may be conserved and utilized, such as irrigation, reafforestation, swamp reclamation, hydro-electric development, etc. Such community spirit has made it possible to utilize nearly all the water which flows from mountain streams at Funchal in the Madeira Islands, to irrigate their very intensively cultivated lands. Although similar examples exist in nearly all the countries of Europe, still in no place was a greater variety of crops being raised on the same land than at Madeira. This would not have been possible except for irrigation, and irrigation would not have been feasible without community spirit. The land holdings were very small and very great in number, one below another on the hillside, each receiving successively the water which had been diverted from the streams

and which was soaking from each small patch to the ones below it. Many of the farms in New York, New England and many other parts of the United States, where water from the streams is running away throughout the summer and being lost in the sea, should take a lesson from what is being done at Madeira. It is not so much a question in these states of the total annual rainfall as of the rainfall which is utilized. In New York there may be fifty inches of rainfall annually, and perhaps two-thirds of it escapes during the winter when the ground is frozen and is not available, and the remaining amount is insufficient. That our farms are larger is an advantage, for less individual owners have to be brought into agreement.

RECOMMENDATIONS

We recommend the hearty coöperation of all the people of the State of New York with the excellent work which is being done by the Conservation Commission in supplying trees for reafforestation at cost and the other advantages which are offered to the farmers under the Conservation Law, such as the exemption of reafforested land from taxation and the provisions enabling the utilization of water powers, etc.; also coöperation with the Department of Agriculture in the efforts which it is making to remedy defects in the marketing system and all the other valuable services which it is placing at the disposition of the people of our State through its several bureaus, among which may be mentioned the Bureau of Coöperative Associations and the Employment Bureau. Still further advantage can be taken of the services and information available through the State College of Agriculture and the experiment stations, the demonstrations made by the railroad companies and other institutions for the betterment of agriculture; and if the individual farmers, as well as the agricultural associations throughout the State, will make renewed efforts to take advantage of the above mentioned services to the fullest extent, the already rapid progress of New York State agriculture should be still further accelerated. Some of the new laws which have been only recently passed by the legislature may perhaps be made more workable by slight amendments, and such other new provisions made as may be necessary.

Instead of recommending special attention to all the needs of New York State which may need further legislation, we will simply specify four of those which seem most urgent and leave the others to be taken care of by the efficient agencies which already have them in charge.

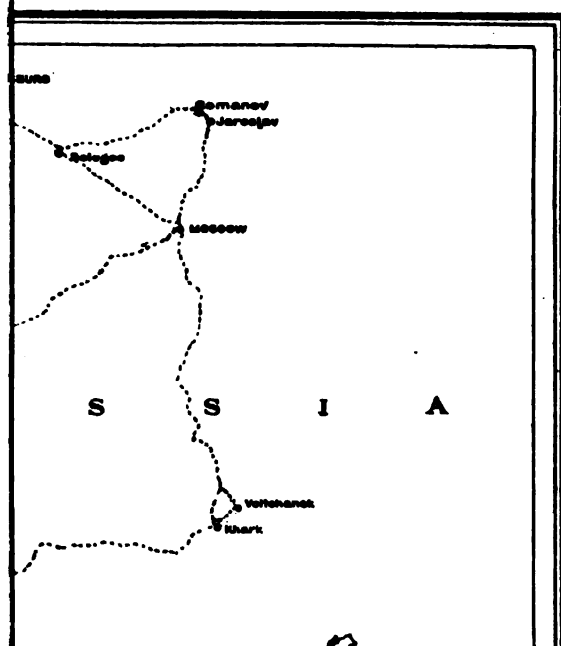
These four "Urgent Needs" have been given consideration by the officials of the state already to a large extent, and the only purpose of these recommendations is to coöperate with these state officials with a view to making such laws and regulations as are now in existence more effective.

1. Legislation permitting the establishment of better marketing facilities. This will include such amendments as may be required in the law governing commission merchants, and that providing for the establishment of coöperative associations, etc.

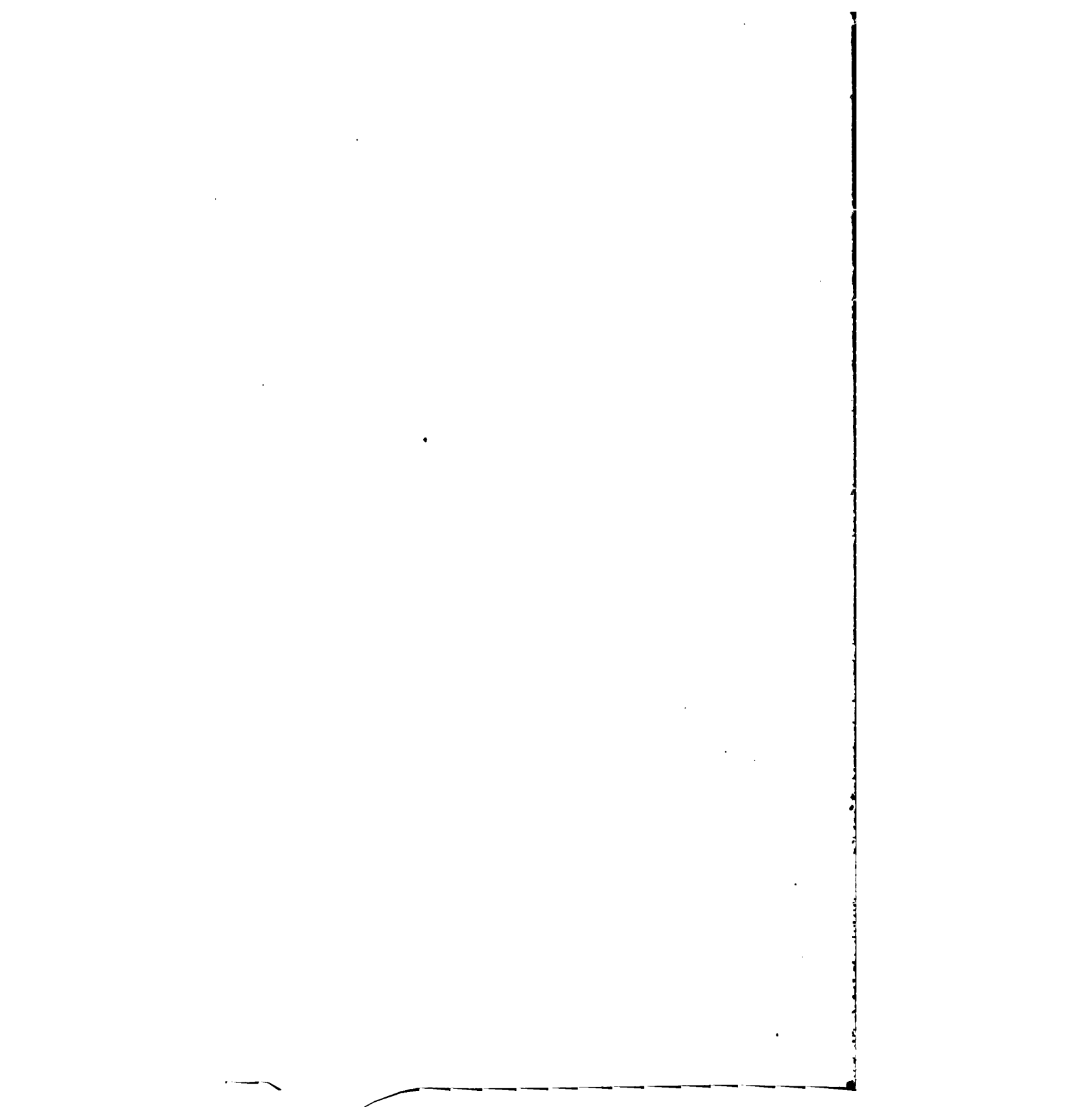
2. Such amendments to the Conservation Law as may be required to induce immediate action in conserving soil fertility, reafforestation, storage of surplus rainfall, irrigation, reclamation of swamps and hydro-electric development, particularly on a small scale.

3. Legislation permitting the organization of land-mortgage banks for long-term loans, for permanent improvements with amortization features.

4. Such legislation as may bring about a better system of secondary roads of the state, as can not be comprehended in the system of state and county highways under the present plan of the Highway Department.



OF THE DIRECTOR



STATE OF NEW YORK
DEPARTMENT OF AGRICULTURE

CALVIN J. HUSON, *Commissioner*

Bulletin 57

Potato Growing

IN

New York State

ISSUED BY THE BUREAU OF FARMERS' INSTITUTES AND
COMPILED UNDER THE SUPERVISION
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INTRODUCTION

With the exception of alfalfa there is no farm crop concerning which the Department of Agriculture receives so many inquiries as potatoes. This is to be expected when we consider that it is fourth in acreage of farm crops in the state, there being 394,319 acres devoted to it, producing annually 48,597,701 bushels — an average of 123.2 bushels per acre, worth \$20,399,000, as may be seen by an examination of the figures taken from the United States census for the year 1909 in the rear of the bulletin. These statistics show, too, how widely it is distributed over the counties, twenty-five counties having 4,000 or more acres devoted to this crop. In many counties and on many farms the prosperity of the inhabitants depends on its success. Even where it is not of prime importance as a source of revenue through all the countryside, it is one of the staple articles of diet on the tables of rich and poor alike. By its aid many farms have been paid for. It has helped to educate many a man and woman prominent in world-wide affairs, as well as to support the Gospel by which the world is made better. This is the pleasing side of the picture; the other less pleasing is the many difficulties connected with its profitable production.

The fact that the potato is propagated not from a true seed but an enlarged underground stem, renders it vitally necessary that the seed stock should be most carefully selected and preserved. The susceptibility to diseases of both tubers and plants, with the many insect enemies which attack it, and which must be successfully combated to insure a profitable crop, are all serious handicaps and call for most intelligent and painstaking effort. Add to this the fact that the composition of the tuber being nearly three-fourths water, together with the additional amount required to develop and sustain the top, call into action the grower's best endeavor to properly husband his water supply. He must also consider the necessity of supplying an abundance of plant food of the proper sort available when most needed, all of which in-

creases the expense and adds to the risk. Any one of the above may and often do produce a whole or partial failure. In these days of high prices and scanty labor supply, much expensive machinery must be employed if the profit from the crop is to be on the right side of the ledger, which means sufficiently large acreage to afford the purchase of such machinery. It is a heavy crop to handle and can not be carried for an indefinite time as can hay or the cereals. Hence, good roads, proximity to shipping points and proper market facilities, enter into the problem to as great or greater degree than with any other farm crop, except milk.

This volume has been compiled to give to the potato its proper place in the agriculture of our state, and more particularly to set forth the best cultural methods, with the nature and life history of the diseases and insects which beset the crop, as well as the means for their control; also examples of successful marketing, not forgetting the consuming public as evidenced by the last article.

The subject matter has been supplied by selected writers who speak — or write — with authority, because of their experience along the particular lines which they treat. This help has been cheerfully given at no small sacrifice of time on the part of the writers. The compiler desires to express his appreciation of their efforts which he is sure will be seconded by the many who will obtain help from its pages. With this end in view the work is sent forth on its mission.

HISTORY OF THE POTATO

EDWARD VAN ALSTYNE, KINDERHOOK, N. Y.

Director of Farmers' Institutes



The potato, with corn and tobacco, completes the trinity of purely American plants occupying a prominent place among our agricultural products. It is a native of South America and was found there by Spanish explorers early in the sixteenth century. They reported it an important article of food in what is now Chili and Peru. Its native home is at an altitude of from 4,000 to 6,000 feet, the climatic conditions being not dissimilar to

those in Colorado and southern Idaho where it flourishes today. These explorers carried it to Spain. Other Spaniards took it to Florida, and very likely from there to Virginia. London's encyclopedia published in 1836 says it was "probably brought to England from Virginia by Sir Walter Raleigh in 1586," induced, no doubt, by the prizes history tells us the crown offered for new and valuable plants and fruits. All authorities agree as to its being found in Virginia by the colonists. That it had not been growing for a long time is indicated by the fact that the tubers are spoken of as no larger than marbles. Some give the credit of bringing it to England to Admiral Sir Francis Drake, who is said to have sent especially to Virginia for the tubers. All agree as to the year of its introduction into Great Britain; that it came from Virginia, and that it was first planted in Ireland near Cork. In Ireland it was well received. Doubtless to this is due the fact that it is so commonly and erroneously called the Irish potato. In England it at first met with little favor. Sir Walter is said to have endeavored to induce Queen Bess to take an interest in his find and to that end had a dish of the cooked tubers placed on her table. Neither she nor her guests cared for the new vegetable and were inclined to believe it poisonous.

In 1663 potato culture became quite general through the efforts of the Royal Society, which recognized its food value. Scotland does not seem to have taken to it until the middle of the eighteenth century, when a famine impressed its value on the Scottish people.

In 1747 we read that 700 bushels were imported from Carolina. Italy appears to have given attention to the newcomer before any other European country. After Ireland, Switzerland, France and Germany took it up, but it does not seem to have been given its true value as a human food until the nineteenth century.

To a Frenchman, M. Parmentier, is due the popularity of the potato as a food. His efforts were ably seconded by Louis XVI, who ordered a large tract planted with potatoes. Later he wore one of the blossoms in his buttonhole. The King had the plot guarded by a cordon of troops which excited the curiosity of the people. When the tubers were gathered he invited a number of scientific and prominent men to a banquet where every dish was composed in whole or part of potatoes. This quickly brought it into popular favor.

Early settlers in this country generally appear to have given it a prominent place in their agriculture. In 1840 mention is first made of the potato in the United State census report. The crop is given at 108,298,060 bushels. In all North America, Australasia and South America, it is now generally grown. During the last thirty years its culture has become general in Holland, Germany and France, and it is said to be rapidly increasing in favor in Russia. China too is cultivating it, but in that country, as with all else new, its adoption is slow. Owing to its food qualities it will doubtless be of great economic value in the land of the Dragon. No tuber heretofore discovered is of such world-wide adaptation as a human food. The last article, by Mrs. Harrington, clearly demonstrates this fact.

BOTANY AND NOMENCLATURE

The potato belongs to the *nightshade* family, which explains the English prejudice against it. In this family are the tobacco, tomato, egg-plant and capsicum. There are sixteen hundred species, only six of which bear tubers. The wild potato produces seed balls from the flowers. Owing to its long propagation from

the tuber or from the cutting, these are seldom seen where it is cultivated. The writer as a boy remembers the seed ball as much more common than at present.

The botanical name of the potato is *Solanum tuberosum*, the first word meaning soothing or quieting (the effect of the nightshade). This is the name of the genus. In the second word the Latin root "tuber" is easily recognized. Freely translated the name means "soothing plant with swellings." This scientific name was given by a celebrated botanist, Jaspard Banhim of Basle, Switzerland, about 1590. It was called *openauk*, an Indian name; also "Bata Virginia." A Frenchman, M. Frazier, a voyager on the coast of Chili, in a book describing that voyage, gave it its popular name, it having been first called "apple of the earth"—French, *Pomme de Terre*. Potato seems to have been a corruption or adaption of the Indian name papas, meaning roots, and bata as given above.

HISTORIC IMPORTANCE

To the failure of the crop, caused by what is now generally recognized as late blight, was due the famine in Ireland in 1846, through which Ireland lost by death and immigration more than three million of her people. The potato had come to be the sole food dependence of the peasant population. In 1844 the crop was stricken in America, but in Ireland the yield was plentiful. In 1845 the harvest promised to be the most abundant in years. In one short month it was as if a simoon had blasted the land. The buoyant nature of the Celt asserted itself and the year following he planted as before. All promised well until the close of July, when in a night, the entire crop was doomed. The previous year had exhausted the people. By winter the deaths were so many that no attempt was made to provide coffin or shroud. The fever and plague accompanied starvation. The failure of England to open her ports intensified the situation. To the coming of English landlords to take the place of the natives is largely due the troubles of Ireland to this day. For a time it appeared as if the potato was threatened with extinction. Climatic conditions, however, were not favorable to the spread of the disease, and for a generation the crop continued to be profitably grown with only an occasional disastrous failure due to the dread disease, for until

twenty-five years ago nothing was done to control it. It seems incredible in the light of experience of the past dozen years that the unchecked spread of the disease should not have completely wiped out the crop. Doubtless the vigor of the plant grown on newer and more fertile soils with the foliage uninjured by the Colorado beetle in part explains the situation.

In January, 1889, the writer attended one of the first farmers' institutes held in the state in Agricultural Hall (now the Department of Agriculture building) in the city of Albany. Dr. Charles H. Peck, State Botanist, read a paper describing the nature of the blight, illustrated by charts showing the affected foliage. He told of the accidental discovery in a vineyard near Bordeaux, France, of a combination of lime and copper sulphate as a preventive of the rot in the grape and of its having been successfully used in combating potato blight. This is the now well-known bordeaux mixture. I think this was the first public presentation of the subject in the state. Representative men in all lines of agriculture and horticulture were present, and I question if any present had previous knowledge of the matter. So prominent a man as Dr. Hexamer, editor of the American Agriculturist, asked if the poison could not be put with the mixture and both bugs and blight spraying be done at the same time. Dr. Peck did not know. A couple of years later this question was asked at a farmers' institute in Batavia. A very prominent horticulturist said, "Paris green will kill the bugs, bordeaux mixture prevent the blight, both together will kill the vines." Truly "the world do move."

In 1875, the Colorado potato beetle began to be troublesome in western New York. A few specimens were seen in the eastern portion of the state, and the year following they were very abundant. Hundreds of acres of potatoes were destroyed by them. Paris green was suggested as a remedy, but the proper quantity to use was uncertain as well as the best way to apply it. Many seriously burned their vines. All sorts of nostrums were put on the market, all of which were equally valueless. Subsequently paris green came into general use and timely application controlled the beetle. Nevertheless, the free arsenic in it has done great injury to the foliage. Doubtless much that has been con-

sidered blight is nothing but paris green injury. The advent of the potato bug and the spread of the blight has radically changed the agriculture of many portions of the state.

Scientists, experiment station men, as well as growers, are now giving much intelligent attention to this plant as attested by the different articles in this bulletin, for its almost world-wide value is everywhere recognized.

NOTE.—Credit is given to *Bailey's Encyclopedia of Horticulture* and "*The Potato*" by Eugene S. Grubb and W. S. Guilford, for much of the data in this article.

POTATO SOILS AND THEIR PREPARATION

PROFESSOR ALVA AGEE

Director of Agricultural Extension, New Brunswick, N. J.



Certain areas have become noted for potato production. Their soils favor the plant. A big percentage of the country's crop is produced in soils less well adapted to it. Local markets may make the crop a profitable one despite some adverse conditions, and then it is good farming to have it in the rotation. In such cases the grower selects the soil that is nearest the desired type and makes the best of it.

A desirable potato soil is well drained, mellow and retentive of moisture. The plant needs a supply of moisture to maintain continuous growth and the tubers need such a soil structure that displacement of the particles during their development is easy. We may supply an abundance of plant food, but these two simple requirements are imperative. Success in potato growing depends in large measure on skill in selection of a soil, or else in its amendment by use of organic matter and tillage.

The growers in warm latitudes depend very much on earliness for profit and select sandy soils that would be too hot and too droughty for potatoes, using the entire summer for their growth. These light lands are made reasonably retentive of moisture by the incorporation of decayed organic matter with the soil. The period of growth is confined to the season of the year having a relatively large rainfall. Any shortage in yield due to lack of moisture and excessive heat has its compensation in the high price commanded by an early crop. It thus comes about that a good potato soil in the south may be one that would be too light for main crop potatoes in the North. Crimson clover, wheat and rye are favorite catch crops preceding potatoes and furnishing humus.

A very large acreage of potatoes in the North is grown in soils that owe their fitness to the presence of organic matter which

keeps them in a friable condition. In some instances nature has furnished the vegetable matter in a lavish way, as in portions of the north-central states, but oftener there is constant struggle on the part of the farmer to make the supply adequate or to keep it so. This is true of the alluvial soils that are especially adapted to potatoes as well as to the sandy loam up-lands that lose their humus readily. Mellowness is a characteristic greatly to be desired and not to be retained without effort.

It is feasible to convert a rather compact clay loam or silt loam into a profitable potato soil by having decaying organic matter well distributed among the soil particles. Sods lend themselves well to this purpose because the roots penetrate every part of the ground. Such soils are less leachy than quite sandy loams, and the remains of sods and cover crops make their moisture-holding capacity still greater. When selecting land for a main crop, there is an advantage in that type which is naturally so heavy that organic material must be kept in liberal supply. Sods and potatoes go naturally into a crop rotation. Matured vegetation is more serviceable than sappy growths, and must form a good percentage of the total supply in the soil.

There are crops that assist in putting heavy land into a more friable state. It is a common practice to use clover for this purpose. Where potatoes should be grown in a heavy soil, a local market or home use making this desirable, improved physical condition may be obtained by growing corn on the clover sod and leaving the stalks on the ground to be plowed under in late fall. If a stalk-cutter is not available, a heavily weighted disk harrow will help to put the stalks into condition for quick decay.

In the selection of a soil for potatoes, the natural fertility is a smaller consideration than physical condition. The plant food may be supplied. The crop is a costly one to transfer and the soils rich in organic material in our north-central states can not keep any sandy loam out of competition if it is near a good market. Vegetable matter can make it mellow and retentive of moisture and a complete fertilizer will furnish the needed plant food.

The area of soil that can be adapted to the potato is larger than many suppose, but it is inadvisable to attempt to make over heavy

clays and shales. This is like rowing against the tide. If such soils must be used for a home supply, provide organic matter liberally, strew coal-ashes in the row, plant shallow and ridge, thus obtaining a degree of looseness in texture where the tubers should develop.

The right time for plowing for potatoes is a local question. The purpose of the plowing is to loosen the ground and to mix with the soil any organic matter that may be on the surface. If full exposure to the winter's freezes will benefit physical condition for an early planted crop, it often is good practice to plow in the fall. When planting is later in the spring, the plowing may better be done in early spring.

A heavily weighted disk or cutaway harrow should be used to cut a sod before it is broken. This applies with special force to a grass sod which naturally decays slowly, and is not usually accounted a good one with which to precede potatoes. Double-cut in the fall and again in the spring and then plow as deeply as the soil permits. Leave the sod on edge so far as possible. Follow the plow with a disk or spring-tooth harrow, and it will be found that the diskings before the plow have reduced the labor of preparation after the plow more than one half. When the sod is broken up so that decay will be rapid and so that the plowed soil forms a ready union with the subsoil for the rise of moisture, there is no profit from further harrowings, provided good pulverization has been effected. The surface should be made smooth by use of a plank float before the planter is started.

SEED SELECTION AND BREEDING

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ENVIRONMENT AND HEREDITY

With the development of a potato, just as in the case of a man, there are two important factors concerned,—environment and heredity.

By the first of these we mean whatever has to do with the home or surroundings. In the case of a man the environment consists



FIG. 186.—HARVESTING POTATO-BREEDING PLOTS, PLANT-BREEDING GARDEN, CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION.

of his home life, with all that goes to make up a home, education, friends, food, climate and the like. In the case of the potato the environment consist of the soil, rainfall, sunshine, weeds, cultivation and the like.

By the second of these two factors, heredity, we mean "that property of an organism by which its peculiar nature is transmitted to its descendants." A modern scientist has said that environment is "what we have" while heredity is "what we are."

These two factors have long been recognized and many discussions have arisen as to their relative influence, some insisting that environment is the more important, while others are equally sure that heredity is the stronger factor. For the most part this discussion has centered around human beings or animals rather than around plants, although we now know that the same principles of evolution and heredity apply to both plants and animals. Many instances have been cited by both sides in proof of their assertions. This question never has and probably never will be settled, because the two factors can not be separated so that they work absolutely alone.

For our purpose it is sufficient to know that they are both important in the development of any organism — or to go further in the production of any crop. In the case of plants the importance of the environment has long been known and the careful farmer has seen to it that the land has been properly fertilized and cultivated. He has made conditions for his crops as favorable as possible. However, it is not the purpose of this article to discuss the question of environment, important as it is, but to lay especial emphasis on the second force, heredity. For, in order to produce a maximum crop yield, we must make use of every factor for improvement. While the fundamental principles herein mentioned can be applied to all crops we shall make the application to potatoes only.

HOW TO MAKE THE FORCE OF HEREDITY WORK FOR US

Hybridization

In plant-breeding work there are two processes generally employed, namely hybridization and selection. Hybridization is the process of crossing one plant with another of a different variety or strain. This process is usually more or less complicated and sometimes requires considerable skill, and with the potato it is more or less doubtful for the flowers of this plant are not, as a rule, easily fertilized. Probably every potato grower has seen a

seed ball although they occur but rarely, in spite of the fact that many varieties of potatoes bloom luxuriantly. Some of our standard varieties have arisen as seedlings in this manner. However, the amount of time and labor necessary to do this places this process beyond the reach of the practical man who is looking for quick results. The production of new and improved varieties by hybridization, for the most part, will have to be left to the seedsmen and to the experiment station men.

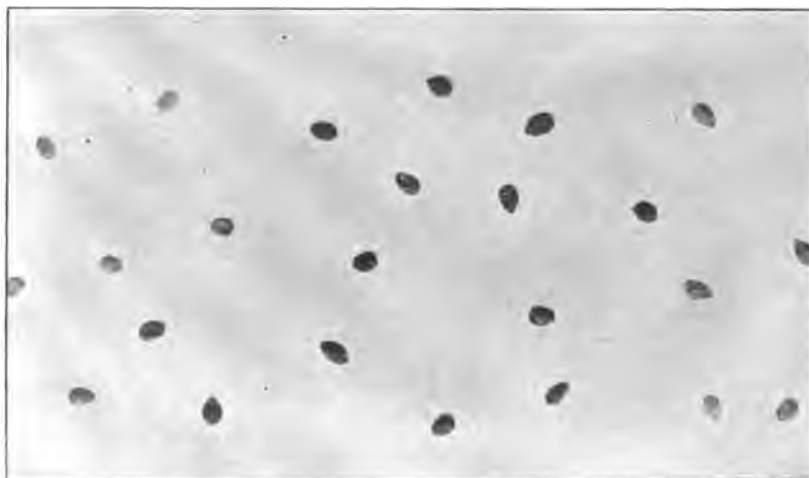


FIG. 187.—POTATO SEED. TWICE MAGNIFIED.

Selection

On the other hand, the process of selection may be utilized by any practical potato grower. Indeed, he can ill afford not to use it since the process is comparatively simple and requires but a small amount of time and labor in comparison with the returns it will give. It might be well to state here that by selection is meant a process of isolation of either desirable or undesirable strains.

Variation

The success of selection depends on the variation that is general in nature. No two individuals, either plants or animals, are exactly alike. They may have the same chance in life, the same environment, and yet their development is different because

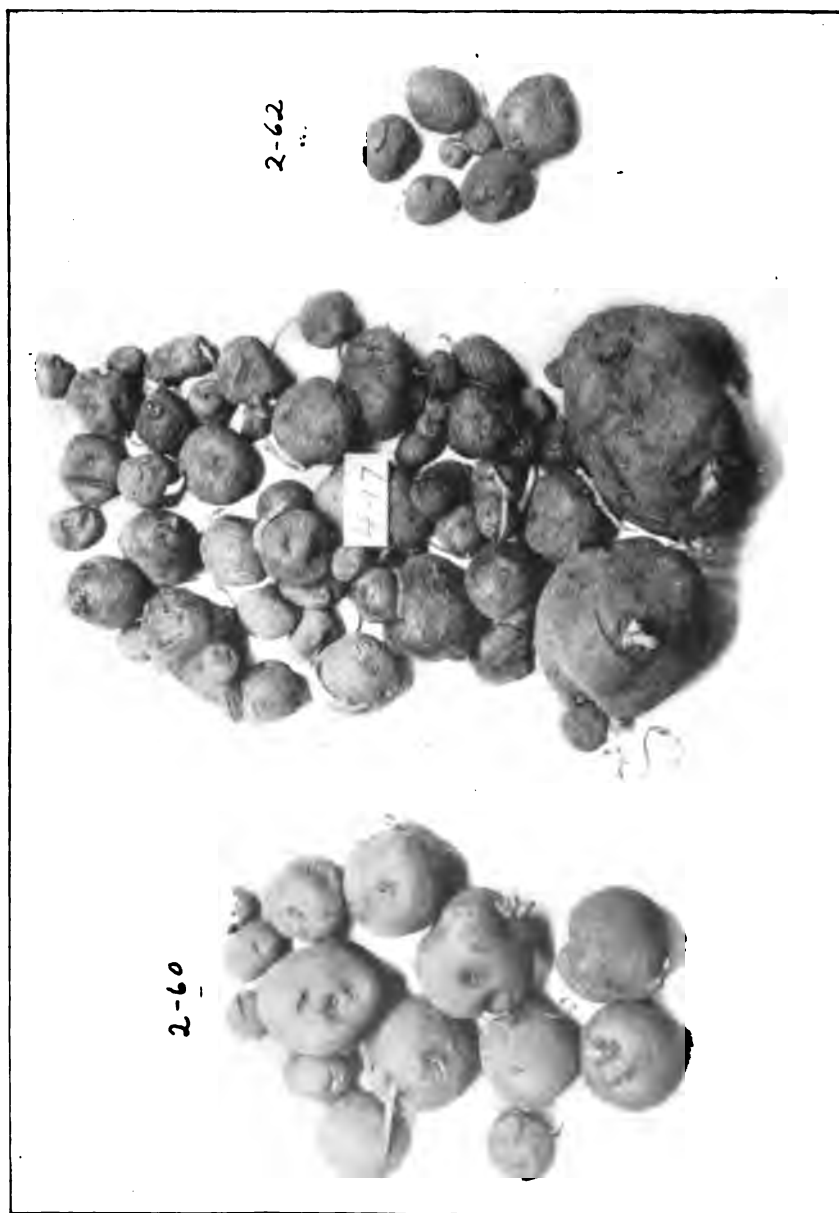


FIG. 188.—POTATOES GROWN FROM SEED, FIRST YEAR'S CROP. ONE-HALF NATURAL SIZE.

of the inherent differences which have been handed down to them from their ancestors by the factor of heredity. The amount and nature of this variation can not be discussed in detail. We will apply the principle directly to the potato.

We may choose from a bin of potatoes of one variety 200 tubers. These tubers may appear very much alike in regard to their uniformity, size, color, depth of eyes, and the like. Indeed, from external appearances we would judge that one of these tubers was just as good as another. And this may be true so far as the desirability for present use as food is concerned. But let us test the transmission of these 200 individuals. This can best be done by use of the "tuber unit" method devised by Webber.¹

Tuber Unit Method

In this method each tuber is cut lengthwise into four sections, cutting from the seed end in order that some of the seed-end eyes may be in each seed piece. Then the four pieces of each potato are planted in four consecutive hills. These four hills constitute the unit. The lot of 200 tubers is planted in this manner. At harvest time each unit is dug separately. At that time the inherent difference which was in the original parent tubers will become apparent. Some units will yield a great deal more than others, although they are located side by side on the same soil. In Table 1 is given the yield of a series of tuber units selected at random from a breeding plot such as described above. An inspection of Table 1 shows us that there was a great difference in the yielding capacity of the individual tubers. The lowest unit yielded at the rate of 25 bushels per acre while the highest one yielded at the rate of 320 bushels per acre. Mr. Potato-Grower, from which unit would you prefer to save seed for next year's planting? Does the successful dairyman breed from the high producing or the low producing cows?

Test of Transmission

The question may arise as to the transmission of this yielding capacity. Will tubers selected from the good yielding units on

¹ Webber, H. J., *Plant-Breeding for Farmers*. Bulletin 251, Cornell University Agricultural Experiment Station, February, 1908.

the average reproduce that characteristic in the next generation and, similarly, will tubers from the low yielding units reproduce that characteristic? In Table 2 are data which throw light on this question. This table shows the results obtained in the Cornell experiments¹ by selecting from both low and high yielding strains for a period of five years. In 1909 the differences are not so apparent from the table, because, for the most part, the



FIG 189.— VARIATION IN THE PROGENY OF TWO INDIVIDUAL TUBERS SELECTED FROM VERMONT GOLD COIN. SERIES 531-2, LONG, SLENDER TUBERS; SERIES 531-5, ROUND, OBLONG TUBERS.

low yielding units produced a small yield of merchantable tubers, but in two instances there were enough small unmarketable tubers in these units to make them actually weigh more than the units which were selected as high yield. Beginning with the crop of 1910, there is a very striking difference between the

¹The potato-breeding experiments at Cornell were started by Dr. H. J. Webber who conducted the work until he severed his connection with the College in 1913. At that time the work was transferred to the writer.

strains which have been transmitted for four bud generations. The yields in this table are based on the average yield per hill. For a better comparison the five year average is also given in bushels per acre. The five year average of the low yielding strain is 82 bushels per acre, while that of the high yielding strain is 208 bushels per acre. In Fig. 190 this comparison is shown graphically by means of wire cylinders. The height of the column in each cylinder represents the comparative yield of that strain.

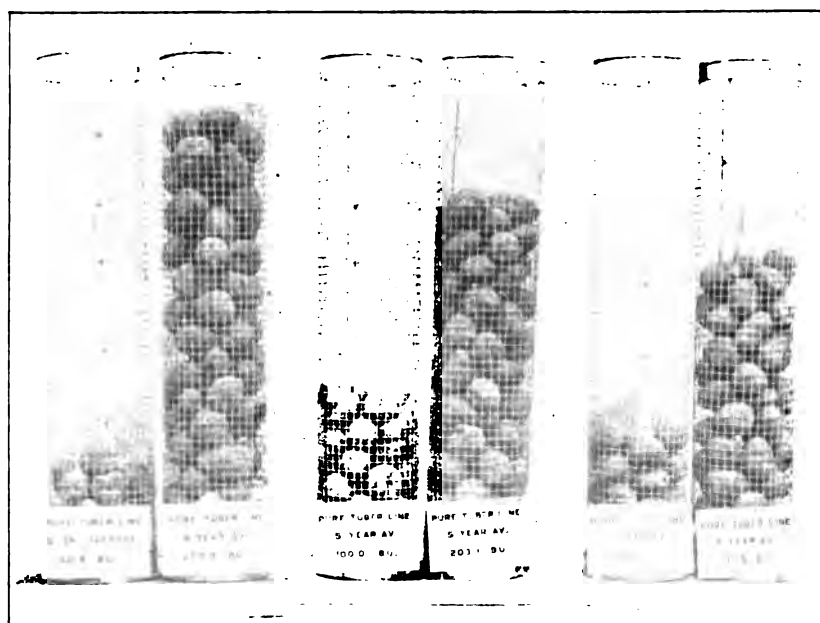


FIG. 190.—EFFECT OF INDIVIDUAL HILL SELECTION. EACH CYLINDER REPRESENTS THE OFFSPRING OF AN INDIVIDUAL PARENTAL TUBER. THE DIFFERENT HEIGHTS REPRESENT THE COMPARATIVE YIELD IN BUSHELS PER ACRE FOR FIVE YEARS.

The data which have been given in Tables 1 and 2 have to do only with yield. Variation occurs in regard to many other characteristics, such as size, shape, color, depth (Fig. 192) and shape of eyes, and the like. Thus, from a commercial variety such as Rural New Yorker, both a long and a round tuber strain may be obtained by individual selection.



FIG. 191.— VARIATION IN THE PROGENY OF THREE INDIVIDUAL TUBERS OF VERMONT GOLD COIN. SERIES 525-1, IRREGULAR, GOOD YIELD; SERIES 525-2, REGULAR, GOOD YIELD; SERIES 525-3, LOW YIELD.



FIG. 192.— VARIATION IN THE DEPTH OF EYES OF TWO TUBERS SELECTED FROM EARLY ROSE. SERIES 526-2, SHALLOW EYES; SERIES 526-3, DEEP EYES.

The results of a large number of experiments at various agricultural colleges and experiment stations have practically the same significance as the ones herein given, namely that the yield of potatoes may be materially increased by the practice of some systematic method of individual hill selection. This conclusion is further strengthened by the results obtained from practical growers in many parts of the country.

Running Out of Seed

We hear a great deal said about the "running out" of seed and some growers yet advocate a change of seed every year or so. There are certain restricted localities in New York State — Long Island for example — where this may be necessary, although it has not yet been demonstrated conclusively. Too, the Cornell experiments have shown that a certain amount of bud variation occurs in potatoes and that diverse strains may arise within the offspring of a single parental tuber. Often, these variations that occur are in the nature of a degenerate or low yielding type. However, these offshoots are comparatively infrequent and the practical man will immediately observe and discard them, if he is practicing hill selection.

It is not expected that the big grower will dig his entire crop by hand, but he should carry on a seed selection plot at one side of his field which he can dig by hand and where he can make his individual hill selections. These individual hill selections will constitute a seed stock which can be increased in a good section of the field. In this manner the entire commercial field may soon be planted to selected seed.

The method of individual hill selection is applicable and practical for the greater part of the State of New York, one of the leading potato producing states in the Union. If we maintain our position in the production of this important crop, we must take advantage of all our opportunities. Let us not neglect this important question of the selection of our seed stock. Along with the important factor of environment let us make use of the factor of heredity.



FIG. 193.— DIGGING A SEED PLOT OF POTATOES IN DUTCHESS COUNTY.

Table 1

Showing variation in the yielding capacity of different tubers.
Each unit is the product of a different parental tuber.

Unit	Yield bu. per acre	Unit	Yield bu. per acre
1	110	9	230
2	220	10	130
3	220	11	210
4	230	12	70
5	280	13	190
6	320	14	190
7	240	15	25
8	230	16	270

Table 2.

Results of selection from high and low yielding strains of potatoes.

	1909 yield per hill, gr.	1910 yield per hill, gr.	1911 yield per hill, gr.	1912 yield per hill, gr.	1913 yield per hill, gr.	Five year average yield per hill, gr.	Five year average bushel per acre.
Low yield.....	693	43	32	76	101	189.16	67
High yield.....	307	619	390	1,840	395	710.28	251
Low yield.....	1,044	130	37	107	97	283.16	100
High yield.....	977	550	480	544	322	574.78	203
Low yield.....	659	202	64	62	141	225.64	80
High yield.....	706	410	281	673	357	485.52	171

Five-year average of three low-yielding strains 82 bushels per acre.

Five-year average of three high-yielding strains 208 bushels per acre.

SOME CAUSES OF POOR STANDS OF POTATOES

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One of the principal reasons for the average low yield of potatoes in the state of New York is the failure to obtain a good stand at the start. In addition, many of us do not realize how much more expensive it is to grow half a crop as compared with a full one. For example, if it costs seventy-five dollars per acre to grow a full crop of a hundred and fifty bushels — or fifty cents a bushel — it costs more than one dollar per bushel to grow a crop of seventy-five bushels per acre. Hence, it should be the aim of every grower each year to approach as near as possible a perfect stand of potatoes to begin with. In order to do this it is necessary to familiarize ourselves with the factors which enter in and affect a stand of potatoes.

One of the primary causes of a poor stand are the diseases to which the potato is subject. There are a number of these and they will be discussed in the order of their importance.

LATE BLIGHT

Although this is primarily a disease of the vine and shows its injury principally by destroying the foliage, it is just as destructive to the tubers and far more reaching in its after effects. Wherever potato vines are attacked by the late blight, even though only slightly affected, as in cases where they are sprayed, the seeds or spores of the blight fall to the ground and are carried by water to the tubers on which they sprout and grow much the same as they do on the leaves, even producing blackened areas under the skin of the tuber. Under favorable conditions tubers so blighted, rot in the ground as do the leaves above ground. In most cases, however, the disease is checked in its growth on the tuber by cool weather and the potatoes do not rot until stored. In



FIG. 194.—POTATO LEAF AFFECTED WITH LATE BLIGHT.

still other instances the seeds or spores of the late blight become scattered on the tubers in the act of digging. These tubers along with those that were affected in the ground are stored in pits and cellars where the temperature is high enough for the parasitic plant of the blight to grow slowly and we have as a result the so-called "dry-rot" of the storehouse.

In sections of the county where it is customary to wait until June to plant, if tubers affected as above are planted in a soil which has warmed to about sixty degrees, the disease commences to grow and destroys or rots the seed piece before the sprout can become rooted. In these sections the question is frequently asked, "Why did the first seed I planted come good and what I planted a day or two later, rot?" Inquiry usually brings out the fact that all the rows were first opened, then the fertilizer applied, if used, after which the seed pieces were dropped and covered. In cases where the field was too large to plant in one day, or other conditions interfered, the furrows being opened, the seed rotted before it sprouted. Opening the furrows and leaving them exposed to the sunlight and air a few hours will frequently raise the temperature to or above the point at which the dormant blight in the seed will commence growth. Hence, planting affected seed in a trench or furrow that has lain open several hours and covering the seed with this soil, favors a quick growth of the blight spores within or on the seed piece, resulting in their rotting before they sprout.

The same conditions follow where potatoes affected by the blight are shipped south and planted late. In cases where they are shipped south in the fall for storage they usually go faster with dry rot than when stored in northern sections, due to the fact that the temperature can not be kept low enough to prevent the growth of blight in storage.

In cases where tubers from blighted fields are planted in a soil, either north or south, with a temperature of forty degrees, and kept near that temperature until sprouted, the sprouts "get their own roots" before the soil becomes warm enough for the growth of the blight spores, after which the rotting of the seed piece may result in no harm.

Means of Preventing

If possible do not plant affected seed. Keep plants well sprayed with bordeaux mixture during the growing period. If it is impossible to entirely prevent the blighting of the foliage by spraying, practice either deep planting or ridging at last cultivation. In addition use a good ridger as soon as the vines begin to die. By these methods enough soil is placed over the tuber to act as a filter which prevents the spores reaching them.

Never dig potatoes where affected with blight until the vines are all dead and dry or have been frozen. When dug, store in a cool, dry place, keeping the temperature as low as possible. If blighted seed must be used, plant early in a cool, moist soil.

Treating the tubers with formaldehyde or corrosive sublimate is of little or no value for preventing dry rot or late blight in seed. So far as known the disease lives over winter only on and in the affected tubers.

FUSARIUM BLIGHT AND DRY ROT

This is another disease that sometimes reduces the stand of potatoes, and its effect is usually first noticed by an early maturing of vines here and there over the field. In some instances it causes a "rosetting" or curling of the tops when the vines are about six inches high, combined with dying of the lower leaves and a resultant trimmed appearance. In other cases, where the attack is of a mild form, the vines live throughout the season but produce undersized tubers. In very severe attacks the vines are destroyed before the blossoming period. A thin stand results as well as a reduced yield.

This disease, like the late blight, is carried through the winter in the tubers themselves, and in addition may live in the soil of an affected field during several years. It manifests itself in the potato as a ring or spot, either brown or dark brown, in the vascular tissue near the stem end of the tuber.

When tubers affected as described are stored in a moderately warm, moist cellar the disease continues its growth, resulting in a dry rot. Similar conditions follow when the affected potatoes are shipped south and used for seed. If the soil becomes heated enough before the tubers sprout to favor the growth of the disease

within the seed piece, the latter is destroyed before it sprouts, or it may be destroyed after sprouting and result in a weak, stunted plant. Under ordinary conditions the disease spreads from the infected piece to the young rootlets of the plant which it attacks, and even though it may not kill them outright, it fills the vascular bundles so full that the rootlets are choked and become useless to the plant. From the rootlets the disease spreads to the shank or stem of the plant where it chokes the vascular tissue and the plant gradually dies or prematurely matures.

In cases where this disease has been introduced by affected seed, and the same field is used for potatoes the following year, the stand may be perfect with every indication of a good crop, then be followed by "rosetting," wilting, trimming of the lower leaves, with final early maturity of the vines and a crop of culls and seconds to harvest,—all as a result of the disease living over winter in the soil and making its attack on the vines through the small rootlets.

Fusarium blight, like late blight, can not be controlled by treating the seed nor by spraying the tops. The only method for its control is to avoid saving seed from affected fields. Under these conditions the growers in the south who must buy northern seed each year is at the mercy of the northern grower. His only means of knowing whether the seed he is using is infected must be by an examination of the vascular tissue at the stem end of every tuber he plants.

BLACK LEG

The third disease of importance affecting potato tubers for seed purposes is the so-called "black leg." This is a bacterial disease, a micro-organism, that is carried on the rough skin, in wounds, and on broken tubers. Unless a grower in northern Maine happens to notice that a few hills in a field disappear after they are from four to eight inches high he would not know that his potatoes were infected. These same potatoes shipped south to Norfolk, New Jersey or Long Island, where warm, moist conditions often exist early in the season, and planted, make beautiful "come-ups" only to drop out later as if struck by lightning. The work of the above disease shows itself first when the plants are from one to six inches high, the first symptoms being a rolling of the upper leaves followed by the lower ones turning yellow and final death.

When pulled such plants show a more or less blackened or discolored stem below the surface of the ground, the seed piece is usually rotten and the whole plant dies with a soft rot. In northern sections this disease may have destroyed only a few hills in every row, causing the seed piece to rot and in some cases rotting the new tubers.

At digging time the soil surrounding the rotted tubers, the refuse, and the old seed piece, are brought in contact with healthy tubers with the result that they are inoculated and ready to spread the disease still further in the next crop.

Fortunately for the southern grower, who must use these potatoes, this trouble is easily controlled by soaking the tubers before planting in a solution of formaldehyde, for one and one-half hours. The strength of solution to be used is one pint or one pound of 40 per cent. formaldehyde added to thirty gallons of water.

RHIZOCTONIA

The fourth disease that affects the stand of potatoes in a field is the so-called "Rhizoctonia" trouble. By some writers this is called a sterile fungus of the soil. There are but few soils that are free from it and most kinds of plants, even weeds, are injured by it at some period of their growth. In the sterile stage this parasitic plant can be found as brown or black specks attached to the skin of potatoes. These specks can easily be scraped but are not readily washed from the skin of the potato. In this stage they cause more injury to the tuber.

During the summer, about the time the vines are in full bloom, one will frequently find plants which appear to be covered with a mould at or near the surface of the ground. This is the feeding stage of the Rhizoctonia, the form in which it produces its seeds or spores. These spores are scattered broadcast by wind and water. Even in this stage the fungus does not appear to injure the potato plant, but, under certain conditions of soil or weather, there is a period between the resting or dormant stage on the tuber and the fruiting stage on the vine, that this fungus attacks the young sprouts of the seed piece causing the brown cankers on them which frequently kill the sprout. As a rule the trouble will be noticed in a field by the plants coming through the ground very

unevenly. An examination of the backward hills reveals the fact that the first sprout has been cankered off near or at the tip and is branching below the cankered spot, or the entire sprout is cankered and new sprouts are starting from the same eye. This effort to send up healthy sprouts may be repeated two or three times with the result of very weak plants or unequalness in the maturity of the delayed plants.

Frequently this disease will appear in small areas covering four or five farms, no matter what the source of the seed, then skip several miles before its injury will be found again.

It has been found that treating the tubers with corrosive sublimate solution* for two hours will destroy the dormant stage or "sclerotia" on the tubers; but this treatment will not reach the same stage of the fungus on old roots in the soil.

Other diseases such as scab, powdery scab, silver scurf and russet, may affect the yield and sale of potatoes but do not, so far as known, often affect the "come-up" of the plant. A few troubles known as "leaf roll," "curly dwarf" and "pindling stems" may be an after effect of one or two of the diseases described above, but as yet the exact cause has not been determined.

The combination of the four diseases described frequently results in very uneven stands in the older potato sections of the country. Some seasons a combination results in total failure to get a stand in these sections. Part of the injury resulting from these diseases can be controlled by the user of the seed. For example, scab and black leg can be eliminated by thoroughly soaking the seed potatoes in the formaldehyde solution, combined with planting on fields that are free from these diseases; but the ill effects of late blight and the *Fusarium* dry rot can be controlled only by the combined efforts of the grower and user of the seed potatoes. There are cases in which the potato grower who has to depend on northern grown seed is more or less at the mercy of the producer. For example, if the grower in northern New England is careless about growing potatoes for seed purposes on land which grew potatoes affected with *Fusarium* blight the

* Corrosive sublimate solution is prepared by boiling two ounces of corrosive sublimate in one gallon of water; when dissolved add the solution to fourteen more gallons of water.



FIG. 195.—POTATO PLANT ATTACKED BY LATE BLIGHT.

previous year, or is careless about spraying thoroughly for late blight, and using methods to protect the tubers from the latter, the grower in the south who purchases these potatoes as good seed stock "gets left." On the other hand if the grower in the north raised his potatoes on new land or in a rotation of several years, sprays thoroughly, destroys tubers which show traces of these diseases when he plants; then it is up to the purchaser of such seed to use the same amount of care and pay a remunerative price for the seed.

At the beginning it was stated that diseases of the potato was one of the causes of a poor stand. Too frequently failure to get a good stand of potatoes on a field is due to carelessness of the grower. Growers are frequently found who may have planted part of their acreage, then been delayed a week or ten days by rains before planting the remainder of the crop. The stand of potatoes where planted before the storm would be good while the later planting would be a failure. These conditions result with both home-grown and new seed. Inquiry usually develops the facts that the soil was all fitted alike, the same fertilizer used and in the same amounts, the seed cut and treated alike,—that is, cut while the land was being fitted and put into bags ready to take to the field,—but in the latter case care was not used to prevent healing of the cut potatoes. The cut potatoes in the bags were piled hit and miss in some building. Fortunately what was planted before the storm did not have time to heat. Frequently this seed may have been slightly affected with some of the diseases described. In such cases the neglect of the seed after cutting favored the growth and spread of same in sacks.

Too much attention can not be given to the care and treatment of seed potatoes when preparing them for planting. The potato should always be dusted as cut with either land plaster or flour of sulphur to dry the cut surface (avoid the use of lime on cut potatoes). In addition, if the seed is put into bags as cut care should be taken to prevent heating in the bags.

Another frequent cause of poor stands in sections where chemical fertilizers are used, is carelessness regarding the methods of applying the fertilizers. A potato planting machine that does not mix the fertilizer with considerable quantities of soil sur-

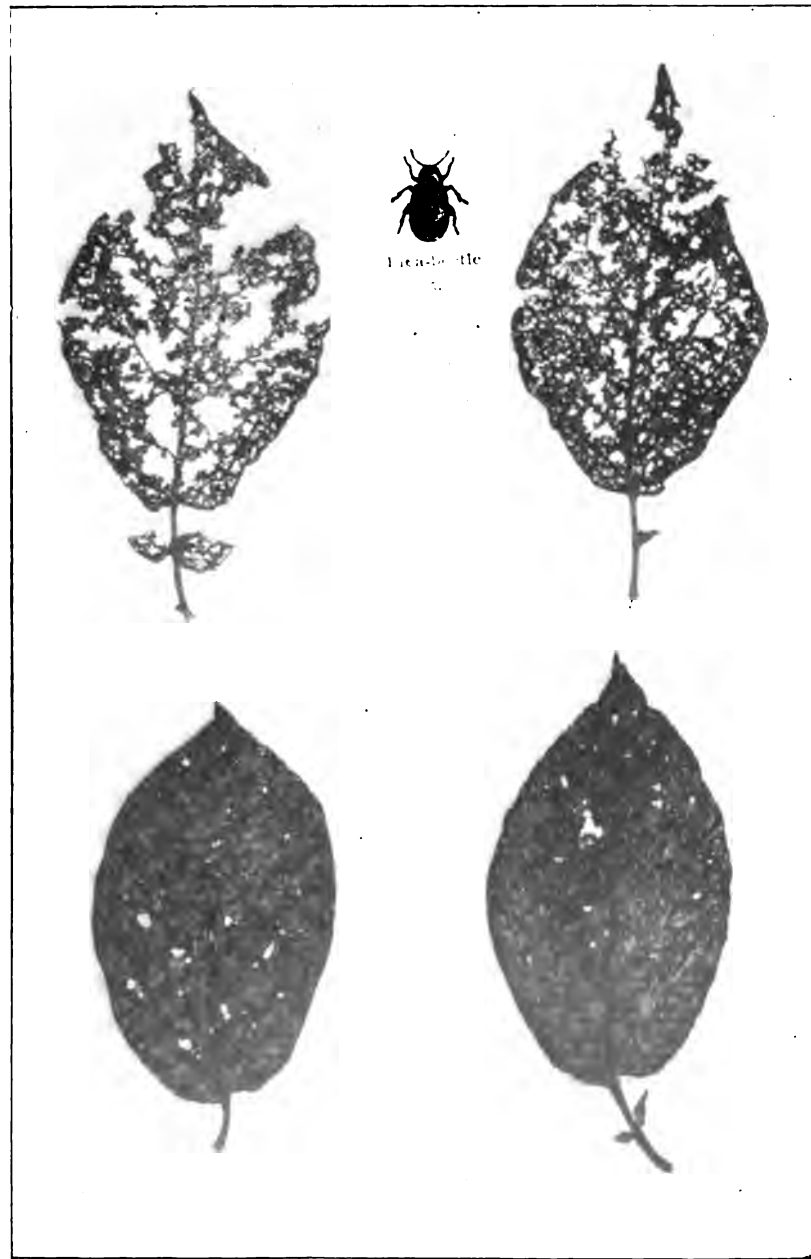


FIG. 196.—THE POTATO FLEA BEETLE AND ITS WORK. UPPER LEAFLETS FROM AN UNSPRAYED PLANT, LOWER ONES FROM A SPRAYED PLANT.

rounding the seed pieces is faulty and frequently results in a poor stand.

Finally, too deep covering in a cold soil may result in a poor "come-up." I have exchanged seed, bushel for bushel, and planted so that the same was planted on adjoining fields. The seed purchased by my neighbor and planted shallow by him came up in a few days and made a good stand, while the bushel of seed from the same sacks planted on the adjoining field at the same time as on the first field, but planted two or three inches deep and covered full depth, made a poor stand. In such cases the tubers may be affected slightly with some disease or low vitality. As a result the seed pieces were destroyed before the sprouts could get to the surface and on their own roots.

NEW EUROPEAN POTATO DISEASES

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Chief, Bureau of Horticulture, State Department of Agriculture

There are two important diseases of the potato that should be most carefully guarded against. Both are known to be very serious in countries where they have become established and every reasonable effort should be made to prevent their finding a foothold in this state.

The causes of the diseases are fungi which reduce or destroy the crop, and the germs may remain in the soil year after year, so that potatoes can not be raised without long rotation.

As no adequate method of control is known and as neither disease has been found here, it is exceedingly desirable to keep them out of the state.

WART DISEASE OF THE POTATO

The first effort made to keep the potato wart disease out of this country was by the Federal Government in September, 1912, when the following order of quarantine was issued:

UNITED STATES DEPARTMENT OF AGRICULTURE

OFFICE OF THE SECRETARY

FEDERAL HORTICULTURAL BOARD

Notice of Quarantine No. 3 (Foreign)

POTATO WART

The fact has been determined by the Acting Secretary of Agriculture that a plant disease known as potato wart, potato canker, black scab, etc., *Chrysophlyctis endobiotica*, Schilb. (*Synchytrium endobioticum* (Schilb.) Perc.), new to and not heretofore widely prevalent or distributed within and throughout the United States, exists in the following countries, viz, Newfoundland; the islands of St. Pierre and Miquelon; Great Britain, including England, Scotland, Wales, and Ireland; Germany; and Austria-Hungary,

Now, therefore, I, Willet M. Hays, Acting Secretary of Agri-

culture, under authority conferred by section 7 of the act approved August 20, 1912, known as "The Plant Quarantine Act," do hereby declare that it is necessary, in order to prevent the introduction into the United States of the disease known as potato wart, potato canker, black scab, etc., to forbid the importation into the United States from the hereinbefore-named countries of the following species, viz, the common or Irish potato, *Solanum tuberosum*.

Hereafter, and until further notice, by virtue of said section 7 of the act of Congress approved August 20, 1912, the importation for all purposes of the species and its horticultural varieties is prohibited.

Done at Washington this 20th day of September, 1912.

Witness my hand and the seal of the United States Department of Agriculture.

WILLET M. HAYS,
Acting Secretary of Agriculture

In November, 1912, the Commissioner of Agriculture of New York State issued the following order relative to the potato wart disease:

OFFICIAL NOTICE

STATE OF NEW YORK

DEPARTMENT OF AGRICULTURE

ALBANY, November 15, 1912.

To whom it may concern:

Records in this office show that a contagious plant disease known as potato wart, potato canker, black scab, etc., new to and not prevalent or distributed within and throughout the State of New York exists in the following countries, viz: Newfoundland; the islands of St. Pierre and Miquelon; Great Britain, including England, Scotland, Wales and Ireland; Germany and Austria-Hungary.

Now, therefore, under the provisions of sections 304 and 305 of the Agricultural Law, I hereby declare that it is necessary in order to prevent the introduction and spread within the state of New York of the disease known as potato wart, potato canker,

black scab, etc., to forbid the bringing into the state of New York for seeding purposes and also to forbid the planting within the state of any potato tubers grown in the above named countries.

CALVIN J. HUSON,
Commissioner of Agriculture

In November, 1912, the Department of Agriculture issued bulletin No. 41, which gave a brief description of the disease, its origin, location and reasons for keeping it out of the state.

With the cooperation of potato growing organizations of the state, grangers and other planters, none of this important European disease of the potato was found during 1913; notwithstanding much publicity was given to the subject. It is not believed that any of this disease has found lodgment in any portion of the state of New York.

POWDERY SCAB

The powdery scab is a new type caused by a parasite (*Spongospora solani* Brunch.) quite different from that causing the common American scab, and has recently been introduced from Europe into Canada and may be found in this country. This differs from the common scab in the character of the spots which are first covered and later break out into brown powdery masses. In many cases this disease forms swellings or excrescences on the tuber. Since it is likely that this will prove to be a quite serious disease it should be carefully watched and promptly reported. (Orton.)

The importance of this disease caused the Federal Government to issue the following notice of quarantine:

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
FEDERAL HORTICULTURAL BOARD

Notice of Quarantine No. 11 (Foreign)

POTATO QUARANTINE

The fact has been determined by the Secretary of Agriculture that injurious potato diseases, including the powdery scab (*Spongospora subterranea*), new to and not heretofore widely prevalent or distributed within and throughout the United States, exist in the Dominion of Canada, Newfoundland, the islands of

St. Pierre and Miquelon, Great Britain, Ireland, and Continental Europe, and are coming to the United States with imported potatoes.

Now, therefore, I, David F. Houston, Secretary of Agriculture, under the authority conferred by section 7 of the act of Congress approved August 20, 1912, known as "The Plant Quarantine Act" (37 United States Statutes at Large, page 315), do hereby declare that it is necessary, in order to prevent the introduction into the United States of such potato diseases, to forbid the importation into the United States, from the countries hereinbefore named, of the common or Irish potato (*Solanum tuberosum*) until such time as it shall have been ascertained, to the satisfaction of the Secretary of Agriculture, that the country or locality from which potatoes are offered for import is free from such potato diseases.

On and after December 24, 1913, and until further notice, by virtue of said section 7 of the act of Congress approved August 20, 1912, the importation, from the countries hereinbefore named, of the common or Irish potato, except for experimental or scientific purposes by the Department of Agriculture, is prohibited: *Provided*, That shipments of such potatoes loaded prior to December 24, 1913, as shown by consular invoices, will be permitted entry up to and including January 15, 1914.

Done at Washington this 22d day of December, 1913.

Witness my hand and the seal of the United States Department of Agriculture.

DAVID F. HOUSTON,
Secretary of Agriculture

At the same time the Federal Government issued the following order relative to the admission of foreign potatoes:

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
FEDERAL HORTICULTURAL BOARD
ORDER COVERING ADMISSION OF FOREIGN POTATOES UNDER
RESTRICTION

The Secretary of Agriculture has determined that the unrestricted importation from any foreign country of the common or

Irish potato grown in the Dominion of Canada, Newfoundland, Great Britain, Ireland, Continental Europe, and other foreign countries, may result in the entry into the United States, its Territories and Districts, of injurious potato diseases, including the powdery scab (*Spongospora subterranea*), and injurious insect pests.

Now, therefore, I, David F. Houston, Secretary of Agriculture, under authority conferred by section 5 of the act of Congress approved August 20, 1912, known as "The Plant Quarantine Act" (37 United States Statutes at Large, page 315), do hereby determine and declare that, on and after January 15, 1914, common or Irish potatoes imported or offered for import into the United States or any of its Territories or Districts shall be subject to all the provisions of sections 1, 2, 3 and 4 of said act of Congress.

Done at Washington this 22d day of December, 1913.

Witness my hand and the seal of the United States Department of Agriculture.

DAVID F. HOUSTON,
Secretary of Agriculture

On March 4, 1914, the Federal government issued a circular giving information that recent surveys established the fact that powdery scab of potatoes exists in portions of Maine adjacent to the Canadian border. The infection found was worse in the extreme northern portion of Aroostook County which is not as important a district as the southern end of the county where also a few scattered cases of disease have appeared. The Maine state authorities in cooperation with the Federal government established a systematic inspection to search out and locate all cases of disease and issued certificates of freedom from powdery scab, and no potatoes known to be diseased are allowed to leave the state. Seed stock will be examined with special care. The subject of control and the system for inspection and certification seems to be adequately provided for. The Honorable J. A. Roberts, Commissioner of Agriculture of Maine, is furnishing this department with lists of all shipments made to the state of New York.

It is known that previous to the discovery of the powdery scab in Maine a portion of the Maine crop had already been distributed.

Of course this distribution was made without knowledge that this disease was in the state. Commissioner Huson is causing the inspection of all Maine potatoes that can be located received prior to March 1. Several lots have already been inspected and no powdery scab has been found. It is not believed that any large number of infected potatoes have come to New York State. It is so important that no diseased potatoes should be planted, that the Commissioner has issued the following warning and suggestions:

"All persons who received potatoes from Maine prior to March 1, 1914, should notify the Commissioner of Agriculture of the fact so that he can arrange an inspection of all such potatoes intended for seeding. Specimens of potatoes that have the appearance of disease should be sent to the Department of Agriculture at Albany with full information relative to their origin, the quantity and the location where they can be examined.

The potato crop in the state of New York is of such vast importance that no planters or other persons would be justified in taking any chances whatever in planting diseased tubers. The wart disease above referred to is known to be very serious and the powdery scab may not be less so. The fungus, when once established in the soil, is likely to remain for several years and it is very difficult and expensive to eradicate it. Up to the present time no adequate means of control is known. This makes it doubly important that only clean, pure seed should be used."

TREATMENT

The common scab (*Oospora scabies*) is too well known to require description further than to say its first appearance is slight swellings on the surface of the tubers. The elevations are found highly colored and increase in size until the skin bursts. The scab area may remain elevated above the surface of the tubers but by the gradual decomposition of the disease they may become sunken pits of greater or less depth.

It has been recommended that seed tubers should be immersed for two hours in a solution containing one pint of 40 per cent. formalin to 30 gallons of water. On removal from the liquid they may be cut and planted at once or they may be spread out to dry and stored for later use. The treated tubers should on

no account be allowed to come in contact with receptacles such as old sacks and barrels in which diseased seed has been handled, as they are certain sources of re-infection.

It is believed, however, that the treatment of seed potatoes with the above formalin method is not adequate for the control of the powdery scab. It is therefore recommended that all tubers to be used for seed that have been brought in from Maine or any other section where the disease is known to prevail should be treated with corrosive sublimate as follows: soak the uncut seed one and one-half or two hours in a solution made by dissolving two ounces of corrosive sublimate (bichlorid of mercury) in sixteen gallons of water. This solution is exceedingly poisonous and must be guarded to prevent stock gaining access to it, and in no case should this method be used for potatoes intended for food.

Notice should be sent to the Commissioner of Agriculture, Albany, N. Y., of any suspected cases of disease so that inspection may be promptly made. Full information should be given relative to the origin of any diseased tubers and specimens carefully marked should be sent by mail to the Commissioner of Agriculture for identification and further information.

FERTILIZERS AND MANURES FOR POTATOES

EDWARD VAN ALSTYNE, KINDERHOOK, N. Y.

Director of Farmers' Institutes

While available plant food is a most important factor in producing a profitable crop of potatoes, yet it is only one factor. The potato is made up of nearly 75 per cent. water, and without this to draw on, particularly in the last two weeks of growth when the tubers are forming so rapidly, there can not possibly be a full crop no matter what fertilizer is used. Water is necessary also to dissolve plant food in the soil, whether put there by nature or man. This is emphasized in the article on soils. Of the remaining 25 per cent. of the potato, less than 2 per cent. is ash, the balance being starch and refuse. The leaves take carbon and oxygen from the air, the various elements being transformed by the sunshine, and the food which is thus manufactured or transformed is deposited throughout the plant; a large portion going to the enlargement of the underground stems or tubers. This impresses the importance of preserving the foliage from insects or disease as treated by Professors Fulton and Stewart on pages 1113 and 1125. I call attention to these facts in this connection to make clear that even the most intelligent and liberal application of plant food will come far short of accomplishing what it should if proper preparation of the soil, retention of water and the preservation of the leaf is neglected. Too many are relying on manure or fertilizers at a considerable cost and failing to provide the essentials referred to. With these facts in mind we are ready to consider the subject of "Fertilizers and Manures."

WHAT THE POTATO REMOVES FROM THE SOIL

The old idea was to supply plant food according to what the crop removed from the soil, or what went into its composition. Theoretically this appeared sound; practically it was not, for no account was made of available plant food in the soil, or that obtained from the air. It is easily apparent that on a muck soil deficient in potash, potatoes will require much more of this ele-

ment in the fertilizer than would be required on one in which potash is abundant, as are most of our New York soils. Again, a soil in best mechanical condition, containing an abundance of organic matter tending to supply nitrogen and help retain moisture as well as to make available mineral plant food, will require a smaller amount of applied fertilizer than will one lacking these.

A yield of 150 bushels of potatoes per acre will remove approximately 31.5 pounds of nitrogen, 13.5 pounds of phosphoric acid and 45 pounds of potash from the soil. Accordingly, fertilizer formulas were—and many still are—made on the basis of a goodly amount of nitrogen, a moderate amount of phosphoric acid and a large quantity of potash, ignoring the character of the soil and what it contains as well as the generally established facts known as to the effects of phosphorous on all crops. Unquestionably thousands of dollars have been and are being wasted by buying fertilizers made up on this basis.

THE EFFECT OF THE DIFFERENT ELEMENTS IN PLANT GROWTH

These are relative, not absolute. Nitrogen produces growth in stalk and leaves and is evidenced by a dark rich color; the lack of it by a weak growth and yellow color. It is evident that in order that transformation processes referred to may be carried on with best results there must be a strong growth. Nevertheless, I am convinced that an excess of nitrogen early in the season may do positive harm, particularly if drought follows. It will produce a large top, very succulent, exceedingly susceptible to disease, to sustain which means pumping large quantities of water from the soil. Later there is not sufficient moisture and available plant food to sustain this large top and produce tubers, therefore the plant ripens prematurely and a disappointing yield of tubers results.

Phosphoric acid influences the production of seed, hastens the maturity of the crop, and in the potato is supposed to influence the production of starch. I have come to the conclusion—with which many successful growers and scientists agree—that phosphoric acid is fully as important for potatoes as potash. First, be-

cause this is a vitally necessary element in all plant growth, without which plants lack stamina. Second, phosphoric acid is much more deficient in most soils than potash. Third, there may be a tendency for the phosphoric acid to revert or lock up in the soil during prolonged drought. If only a minimum amount is used and rain does not come until shortly before the crop matures, a sufficient quantity will not be available to meet the needs of the tuber in the brief time, as would be the case if a liberal amount were used.

Potash is supposed to make strong the stalks or structure of the plant and to be an important factor in developing starch. Except on muck soils referred to, doubtless 5 per cent. of potash is as much as the potato can profitably use, although most potato formulas contain from 8 to 10 per cent.

Some years ago an experiment was made on Long Island by the State Experiment Station to ascertain facts as to a profitable amount of potash to use on the island where there is much less potash in the soil than over the entire state. Four fields were selected in different sections of the island.

A half ton of potash to the acre was used in each case. On the first plot no potash was used, on the second 4 per cent., third 7 per cent., fourth 10 per cent. In every instance the nitrogen and phosphoric acid were the same. No potash gave a very unsatisfactory yield; 4 per cent. a good one; 7 per cent. better, but not enough more potatoes to pay for the extra 3 per cent.; and 10 per cent. less than 7. There was the same relative return from all the fields. A like application was repeated on the plots for three years in succession, the thought being that the old formula of 10 per cent. had left a residue of potash in the soil. While the yield per acre was less each year as naturally would be expected from successive crops of potatoes, proportionate results were obtained as at first. Many Long Island farmers are in consequence using 5 per cent. potash in their potato fertilizers with excellent results.

ORGANIC MATTER

Having discussed the principles of the essential elements of plant food and their office, before going into detail as to formulas and methods of application, I would emphasize the part organic

matter plays in fertility, even though I repeat what has been said by others.

The amount of nitrogen in a soil is always in proportion to the organic matter it contains. Hence, if by the inverted sod, crops plowed under, or stable manures, the soil is filled with organic matter, in the same proportion will the nitrogen content be increased and to that extent the necessity of purchasing the same avoided. It will also produce conditions which will increase the availability of mineral plant food in the soil, thereby reducing the amount of applied fertilizers necessary.

STABLE MANURE

Stable manure has a value beyond the plant food it contains; namely, it provides organic matter. Much city manure as well as that produced on the farms and uncared for, would have little value were it not a source of organic matter. A ton of such manure will not contain much over one dollar's worth of plant food, and without question this can be purchased more cheaply in



FIG. 197.—MANURE SHED FOR PROPERLY SAVING MANURE ON THE FARM OF DIRECTOR VAN ALSTYNE, KINDERHOOK, N. Y.

commercial fertilizers and in fully as available form. If the cost of handling this manure is one dollar a ton in addition to the purchase price, on the majority of farms the organic matter may be more economically secured through green crops turned under. Where the manure comes from the farm and it is properly cared

for, the farmer has a much more valuable fertilizer produced at small cost. A ton of average cow manure — liquid and solid — contains from eight to ten pounds of nitrogen, six to eight of phosphoric acid and from eight to ten of potash. An application of twelve tons per acre would supply practically the same amount of plant food as a ton of fertilizer analyzing 5 per cent. nitrogen, 4 per cent. phosphoric acid and 6 per cent. potash. It would seem that with such an application of manure it would be unnecessary on a soil rich in organic matter to add nitrogen or much potash. This I have repeatedly proved, finding that 500 pounds per acre of acid phosphate or 450 pounds of the same and 50 pounds of muriate of potash was an intelligent, economical addition. Where manure is not plentiful, half the above quantity per acre supplemented by a half ton per acre of fertilizer 2-10-5 will be better than no manure and all fertilizer or the reverse.

It has been said that manure is injurious to potatoes in making more favorable conditions for the spread of disease germs. This is not necessarily so unless an excessive quantity is used, which in the light of the foregoing will be seen to be unwise from the standpoint of too much nitrogen. If the manure is applied long enough before planting for the elements to disintegrate it, there will be no trouble from disease caused by the manure. If applied shortly before planting, trouble may arise. I have used hundreds of tons of manure on potatoes, applied during the fall or early winter, and have grown as smooth tubers as where commercial fertilizer was used side by side.

Where manure is plentiful and corn is followed by potatoes in rotation, it is a good practice to apply liberal dressings to the corn; then use fertilizers on the potatoes.

LIME

Lime is not a needed fertilizer for potatoes, they being one of the crops which are tolerant of an acid soil; nor is there enough lime in their make-up to call for it as a direct plant food, as is the case with some other crops. While lime is of value as an improver of the mechanical condition of the soil and a liberator of plant food, the bad results often following its use in making more favorable conditions for the development of scab, would far over-

balance what good might come from its use as above. Therefore we may dismiss it as a direct fertilizer for potatoes; yet the ability to raise clover often makes the difference between profit and loss in growing potatoes. Lime is many times the key to a clover crop. In such cases, I would advise the use of a half ton per acre of carbonate of lime or 500 pounds of caustic lime applied immediately after the potato crop. This in a three year rotation should not make the land so alkaline as not to unduly favor the growth of scab, and should do much to permanently improve the land through the clover.

SOURCE OF COMMERCIAL PLANT FOODS

I have endeavored to make it apparent that no one can say positively, "this particular formula is correct for potatoes under any or all conditions," since so much depends on the particular soil and its condition. Doubtless a 4-10-5 fertilizer will come as near fitting average conditions as any one can determine. It will make little difference where the phosphoric acid comes from so long as it is available. Usually the cheapest and most available — therefore the best — source is South Carolina rock acid phosphate.

Much stress has been laid on the superiority of sulphate over muriate of potash, on the ground that the chlorine in the latter injures the flavor of the potato. Actual tests indicate that unless excessive quantities are used, the muriate has no appreciable ill effects. Since this year there is a difference in price of seven dollars a ton in favor of the muriate, I use and recommend it to others.

Much is left to be desired in the nitrogen content. In most ready-made fertilizers it is purely a matter of conjecture how much of them are from nitrates — quickly available — and how much from an organic source which can not feed the plant until time has produced decay. It is a good practice to have half the nitrogen from nitrate of soda and half from some organic source such as fish scrap or tankage, when one is depending largely on fertilizer and using all of it at one application.

While nitrate of soda is the cheapest source of nitrogen, at present (January, 1914) costing fourteen cents for each pound

of nitrogen, and less being lost in transmission than in any other form; yet when it is all applied at time of planting much may be washed away by heavy rains before there are plant roots to take it up. High-grade tankage is a fairly cheap source of organic nitrogen. Dried blood is excellent and more quickly available, but at present prices it will cost more for a pound of nitrogen in this form than in nitrate of soda. Sulphate of ammonia is a little more expensive than nitrate and a desirable form for part of the nitrogen. If there is a clover sod to plow under or manure or other vegetable matter to decay and supply nitrogen late in the season, it may not be necessary to add other nitrogen to be available at that season. In such cases 2 per cent. from nitrate of soda may be sufficient. Personally, if I need to apply commercial nitrogen, I use nitrate of soda in a moderate quantity, about 2 per cent., when planting; then if in midsummer I find from the appearance of the crop that the growth is deficient, I apply more nitrate of soda. This can be readily done with a grain drill, by mixing with the nitrate dry earth or coal ashes, removing the hoes which might interfere with the plants, and sowing in the space between the rows where the feeding roots are. The drilling will take the place of one cultivation making the cost of the second application slight. In this way I use the cheapest, most quickly available form of nitrogen, and do not use it late in the season unless the plant requires it.

HOMEMADE FORMULAS

By mixing at home or buying the ingredients collectively and combining them, from four dollars to ten dollars a ton can be saved over buying goods made after a general formula, and the user knows exactly the source of his plant food.

It does not require an analytical chemist to make the combinations, nor expensive machinery or extra skilled labor to do the mixing.

The following formulas are good and may be suggestive.

	Cost.
250 pounds nitrate of soda—38 pounds nitrogen.....	\$6 50
100 pounds sulphate ammonia—20 pounds nitrogen.....	3 00
350 pounds tankage—22 pounds nitrogen, 32 pounds phosphoric acid	6 65

	Cost.
1,100 pounds acid phosphate—154 pounds phosphoric acid...	\$8 25
200 pounds muriate potash—100 pounds potash.....	4 10
<hr/>	
Total, 2,000 pounds—80 pounds nitrogen (4 per cent.), 186 pounds phosphoric acid (9.3 per cent.), 100 pounds potash (5 per cent.).....	\$26 50
<hr/>	

When sulphate of ammonia can not be readily secured; for late potatoes, or on soils high in organic matter, the following may be beneficial.

	Cost.
125 pounds nitrate of soda—22 pounds nitrogen.....	\$3 25
800 pounds tankage—50 pounds nitrogen, 72 pounds phosphoric acid	15 20
875 pounds acid phosphate—121 pounds phosphoric acid...	4 40
200 pounds muriate potash—100 pounds potash.....	4 10
<hr/>	
Total, 2,000 pounds—72 pounds nitrogen (3.5 per cent.), 193 pounds phosphoric acid (9.65 per cent.), 100 pounds potash (5 per cent.).....	\$26 95
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The above prices are for carload lots this season, freight included. To this should be added seventy-five cents a ton for mixing. Many other combinations can be easily made.

QUANTITY PER ACRE AND MANNER OF APPLICATION

In using a fertilizer one should always distinguish between which will give a large crop and which a profitable one. The terms are not always synonymous. For instance, a ton per acre may give a larger yield than a half ton, yet the latter may be the more profitable, since the increased yield may not be enough to pay for the extra half ton. Experiments made by Mr. F. A. Sirrine in Suffolk County, Long Island, demonstrated that 1,000 pounds was the most profitable amount to use with potatoes at fifty cents a bushel. Were the price one dollar, the larger quantity might have paid. Under ordinary conditions, a half ton will

Fertilizer	Cost	Increased yield per acre	Money gain
500 pounds.....	\$6.25	23.3 bushels	\$5.40
1,000 pounds.....	12.50	44.3 bushels	10.60
1,500 pounds.....	18.75	55.4 bushels	8.97
2,000 pounds.....	25.00	61.4 bushels	5.70

usually be found a profitable amount. With manure, 500 pounds applied in the hill or drill is best. With early potatoes, even a half ton may be so applied with profit, the idea being to force them as quickly as possible. Care should always be exercised to keep the seed from coming in direct contact with the fertilizer. Under ordinary conditions it is good practice to apply over 500 pounds broadcast over all the surface, and work it in as deeply as possible; since the tendency of the minerals is to fix very close to where they are applied.

In closing, I would again emphasize the fact that the returns from fertilizer of whatever sort will always be commensurate with the mechanical condition of the soil and the amount of free water it contains.



FIG. 198.—POTATOES GROWN BY C. D. WOLCOTT, COHOCTON, N. Y., 1913. TWELVE CRATES OF POTATOES GROWN IN ROWS 4 AND 5, FROM SEED SELECTED FROM HIGH PRODUCING HILLS ONLY, IN 1912. YIELD AN ACRE 199,835 BUSHELS. EIGHT CRATES OF POTATOES GROWN IN ROWS 6 AND 7, FROM LARGE SEED SELECTED FROM THE BIN, YIELD 140,070 BUSHELS. DIFFERENCE 58,765 BUSHELS. CONDITIONS WERE JUST THE SAME EXCEPT SEED. FROST KILLED VINES SEPTEMBER 9, GREATLY REDUCING THE YIELD.

PLANTING AND CULTURAL METHODS

DANIEL DEAN, NICHOLS, N. Y.

The potato markets of New York State pay the highest prices for white potatoes of uniform medium size, good cooking quality, free from disease, smooth, shallow-eyed, and flat-round to oblong-shape. In New York City potatoes from Long Island sell for from ten to twenty-five cents per bushel more than those from other sections of the state because of their good reputation. Red or pink skin is not objected to in early varieties. For local demand and for farmers able to ship in car lots the increased price due to producing just what the market calls for is an easy way to increase profits from potato growing. The farmer needs the best yielding variety for his soil and climate. Late potatoes in New York are often classed in two groups as blue sprout and white sprout varieties. Blue sprouts have smaller tops that are darker in color and are able to stand a greater degree of heat than the white sprouts. This is leading to the growing of white sprouts in the northern counties, on some of the hilltops of the southern tier, and as an early crop on Long Island. The blue sprout varieties are liable to be coarse unless planted close, and of poorer quality unless well sprayed.

It is commonly believed that potato varieties "run out." This occurs on Long Island and in the southern states where the summer heat is too great. In the rest of New York vigor can be maintained. Where the smaller tubers are used as seed year after year the poorer hills that contain a large number of small tubers furnish an increasing proportion of the seed used each year, and so reduce the yield, causing a gradual "running out." Farmers use small seed because it is cheap. It is possible that the increased yield in any one year from using all large seed might not pay the increased cost. Part of the crop should be planted with large seed to keep up vigor. I have found in Tioga County that selection of the best hills for seed for ten years has greatly increased the yield and improved the sale value of the crop. The Cornell Station and the United States Department of Agri-

culture have had the same results. In digging part of the crop, the hills are kept separate and 10 to 20 per cent. of the heaviest saved for seed. Any with rot or poor shape are thrown out. Hills with a few large tubers do not yield as well as those with more and smaller ones and the large stock sells poorly.

This seed is planted in the field by itself next year and the seed plot dug the same way. The small potatoes from this plot are used one year. After a few years the small potatoes "run out" so there would not be enough to plant. The tuber-unit method shows clearly the value of selected seed the first year.



FIG. 199.—SHOWING VARIATION IN THE YIELDING CAPACITY OF TWO INDIVIDUAL TUBERS SELECTED FROM RURAL NEW YORKERS.

There are hundreds of varieties on the market and many new ones produced each year. Out of these a few standard varieties have proved superior under years of test. Among these are the Rural New Yorker No. 2, Carmen No. 3 and Sir Walter Raleigh, blue sprouts; the Green Mountain and Carmen No. 1, white sprouts; and the early varieties Irish Cobbler and Early Rose. New varieties usually being treated better show well at first, but often soon drop behind the old. It is better to test new varieties in a small way while developing the best strains of old and new by hill selection. I have tried over fifty varieties and kept only the Rural.

Potatoes planted in checked hills are a little easier to keep clean than in drills. The larger number of plants in the drill

gives a greater yield. Where good soil or care makes the yield above 100 bushels per acre, the tubers from checked hills are usually too large to bring the best prices in city markets. The distance apart in the row should be suited to the size of the crop the soil can be expected to produce. For 150 bushels to the acre 20 to 24 inches; for 200 bushels 16 to 18 inches and for 300 bushels 12 inches or less will produce a size of tuber about right for market. Blue sprout varieties should be planted closer than white sprout. Rows are from 32 to 42 inches apart, closer on rich and valuable land and farther apart on the poorer and cheaper soils.



FIG. 200.—POTATO FIELD OF H. F. HORTON, STEPHENTOWN, RENSSELAER COUNTY, N. Y. FOLIAGE IN PERFECT CONDITION AS A RESULT OF INTELLIGENT FERTILIZATION AND CULTIVATION, FOLLOWED BY THOROUGH AND TIMELY SPRAYING FOR BUGS AND BLIGHT.

Increasing the size of the seed increases the size of the crop. In spring when seed is cheap, large seed pays; when it is high, smaller seed may be used if better care is given in some other way. With very poor soil larger pieces are necessary because the young plants get less help from the soil the first few weeks. Most farmers use eight to ten bushels per acre in checks and twelve to twenty in drills. Seed should not be cut until just before planting and never allowed to dry. The water in the seed is needed to help start the plant. Land plaster or sulphur may be dusted on

the cut seed with advantage. Machine and hand planters open the furrow and drop the seed in damp soil. For hand planting, marking one way (best the long way) just ahead of planting and covering with damp soil immediately prevents loss. Picker planters do on cheap land with small round seed. The perfect stand obtained with the two-man planter pays best in other cases. Colorado growers use a cutting-box for cutting seed — see Bulletin No. 175, Experiment Station, Fort Collins, Colorado. This is a box on legs holding several bushels. The bottom is sloping and extends a few inches in front with a narrow board to keep seed from rolling off. A gate regulates the descent of the potatoes. At the front of the bottom a knife is clamped upright so that the workman picks up the seed as it rolls down and cuts it by drawing it against the knife. The cut pieces drop into a crate. This is twice as fast and easier than holding the knife in the hand, as well as resulting in better work. The seed end eyes are the best on the potato, particularly with blue sprouts, and as many pieces as possible should have seed end eyes. Pieces must be cut chunky in shape for planters. Blue sprout seed should have at least two eyes.

Fertilizer pays better on potatoes than on other farm crops besides helping the crops following. In Maine the average amount used is nearly a ton per acre and the average yield over 200 bushels per acre. This amount should not be used unless the soil, seed and care are all good. Less than 500 pounds per acre may be applied in the drill if not touching the seed; more is best put on with a grain drill.

CULTIVATION

The object of different methods of cultivation is to increase yield by preventing injury from weeds and loss of water by evaporation, and by liberating the plant food in the soil. Weeds which grow from seeds are very easily killed if the soil is stirred just before or after they reach the surface. Where potatoes are planted with a planter or other tool which leaves a ridge, a peg-tooth harrow with the teeth slanting back should be run over the rows a few days after planting. The potatoes come up quicker and many weeds are killed. Some farmers use a roller on the

ridges with the idea of making the soil water available to start the plants. This is right for the grain crops with their small seeds but not necessary for the large and watery seed-pieces of the potato. It is an injury because potatoes do best in a loose soil — weeds are more easily killed, and the loss of water from the soil is less. Some perennial weeds with root stocks, like quack-grass, are eradicated by plowing both in fall and spring. This so weakens the roots that the cultivator and digger finish them unless in a very wet season.



FIG. 201.—PRACTICAL RIDING CULTIVATOR.

There is a time after each rain when the soil is just right for tillage. The soil crumbles easily and all tools, especially the weeder, work more readily than at any other time; the air is cool after the rain so horses can cover much ground in a short time; working the soil at this time saves the water that would soon be lost, and the weeds sprouted by the rain are killed before their roots get a hold on the soil. It pays a potato grower to allow nothing to stop him from working in the potato field at this time. One hour of work now is worth two hours a few days later. The weeder is the best tool in many soils to kill the weeds in the row just as they start. It operates best if used soon after a rain, before the crust hardens. Many farmers have condemned weeders after trying them when the ground was too hard. The cultivator

should be run as deep as possible the first time; this is the last chance to work the soil below the surface. After that shallow cultivation after each rain is best until just before blossoming.

With the blossoming of the potato begins the critical period in the life of the plant. The effort to form blossoms and set tubers at the same time is very exhausting. The potato came originally from the high and cool mountains of South America, and is not nearly so well suited to our climate as to that of Europe. The heat of our summers is too great. A period of extremely hot and dry weather in July or August often gives the plant a setback from which it never fully recovers and the yield is reduced. Insects and diseases are often prevalent at this time also.



FIG. 202.— A FIELD MEETING HELD UNDER THE AUSPICES OF THE STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY, ON THE POTATO-BREEDING PLOT OF THE LINCOLN AGRICULTURAL SCHOOL, LINCOLNDALE, NEW YORK.

About this time the roots begin to fill the soil and many are close to the surface. Being out of sight their importance is often forgotten. The ability of the leaves to make starch for the tubers is measured by the amount of water and plant food in solution the roots can furnish. It will surprise any one to make a

careful examination and see how many of the roots are destroyed at this time by cultivating or hilling, even when shallow. If part of the roots are cut off when the plant needs them most in dry weather the yield may be reduced one-half or even more. Where stony soil makes hilling necessary it should be done before this time. Hilling is often a last resort to kill the weeds in the row. It pays to kill the weeds by better tillage earlier in the season. The damage is sometimes less if hilling is done three or four days after a heavy rain.

Two common weeds often nearly cover the ground late in summer — sorrel and plantain. Although small in size the damage is often considerable, and they are much worse in sour than in alkaline soils. Lime in moderate amounts applied two or three years before the potato crop will reduce the amount of these weeds without much danger of scab.

PRACTICAL POINTS IN SPRAYING

Profit from spraying depends on spraying at the right time, with the right mixture, and thoroughness in covering every leaf at each application. In a series of years the average profit from spraying is enough to warrant the use of horse-power sprayers on all but small fields. Constant progress is being made in their design, and it will often pay a farmer to alter one to improve its efficiency. A good sprayer should have a pump with capacity enough to develop a pressure of at least 125 pounds while spraying four, five or six rows. It may be advisable to shorten the spray boom to fewer rows. High pressure is necessary for good work. The Maine Experiment Station Bulletin No. 169 states: "A sprayer that does not cover every leaf with a thin film of spray may be practically useless unless this defect can be remedied. The finer the spray and the greater the pressure with which it is thrown, the more effective will be the work. High pressure also tends to drive the mixture in among the leaves thus touching the lower leaves which are usually infected first, and better coating both sides of the leaves which is very important."

The pump should be as simple as possible, made of brass, outside the tank, preferably with single-acting, outside-packed cylin-

ders. Triplex pumps are easy on team and machine. The spray boom should be adjustable in height above the tops and have an arrangement for shifting instantly from side to side. These are both absolutely necessary for good work with tops of different sizes, for work on side hills and in windy weather. The sprayer should drive from both wheels. One-horse sprayers are seldom advisable, as two-horse machines do much better work.

One nozzle to the row is enough while the tops are small. But with large tops two or more nozzles to the row are necessary, since a single unsprayed leaf may produce in a blight season enough spores to rot many potatoes. Probably the best arrangement is that of one nozzle on either side of each row pointing in diagonally so that the two cones of spray cover all the leaves.

To prevent loss by the sprayer wheels injuring large tops, an apparatus is easily made. A hardwood 2 by 4 is fastened by hinges to the under side of the sprayer frame in front of the wheels. An old hay-rake tooth or heavier curved iron is attached to this on either side of each wheel with the points just touching the ground. Trial will show just how far ahead of the wheels to place these to prevent their interfering with the tops. A lever lifts the teeth from the ground at the ends of the rows for turning and for travelling.*

Potatoes intended for storage should not be dug until the skins have set. In blight seasons the tops should be dead at least ten days before digging or rot may result. A number of rod type elevator diggers do good work, unless the soil contains many flat stones.

Potatoes should be dry when put in storage, and kept cool, in darkness and well ventilated. In fall and spring cellar doors should be open nights and shut days. Seed potatoes that are sprouted lose vigor rapidly. The gain in yield causes many growers to keep their seed in cold storage in spring. It pays all growers to give their seed extra care.

* The International Harvester Co. can furnish heavy $\frac{3}{4}$ -inch teeth.

POTATO INSECTS

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The insects affecting the potato may be divided for convenience into four classes, according to their relation to the plant. These are as follows: insects chewing the leaves, insects sucking the leaves and tips, stalk borers, and insects affecting the tubers. The Colorado potato-beetle and the flea-beetles are the only ones which are commonly injurious in this state. The others are not serious pests and attract attention only in certain years or in favorable localities.

INSECTS CHEWING THE LEAVES

The Colorado potato-beetle (Leptinotarsa decimlineat Say.)

This is by far the most familiar and widely distributed of all the enemies of the potato, and is of interest because it is responsible for the use of arsenicals as insecticides. Until about 1855 this insect occurred only in the Rocky Mountain region, where it fed on wild plants of the potato family. It acquired a taste for potatoes

and spread rapidly eastward, and by 1872 had reached New York, but was not generally destructive until 1876.

Both the adult beetles and the larvae devour the leaves, thus checking the growth of the tubers and affecting their quality so

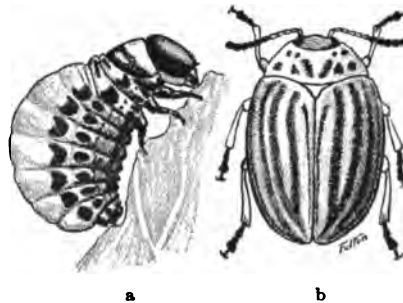


FIG. 203.—LARVA (A) AND ADULT (B)
OF THE COLORADO POTATO-BEETLE.

that they are watery when cooked. In this latitude there are two generations in a year. The adult beetles hibernate through the winter in the ground, usually not more than eight or ten inches below the surface. They emerge early in the spring and fly about. When the potatoes have started above ground they begin to feed, and in a few days the females lay eggs on the under sides of the young leaves. The eggs hatch in from four days to a week or more. The larva pass through four stages or instars and are mature in from sixteen days to three weeks, according to the weather. They then go into the ground and transform into the pupa or resting stage, in which they remain at least a week — usually longer — before coming out as the adult beetles. The egg-laying period lasts about thirty-five or forty days, and each female lays from 500 to 1000 eggs. The minimum time for the life cycle is about four weeks. The beetles of the second generation emerge early in autumn, feed a few weeks and then go into the ground to hibernate.

Control.—This insect is easily controlled by adding an arsenical poison to the bordeaux mixture, which should be regularly applied to control fungus diseases. Poison is usually necessary only for the first two regular sprayings, but should be added at any time the beetle becomes numerous. The first application should be made when the plants are six to eight inches high, and the second should follow ten to fourteen days later.

The best time to put on the first spray can be ascertained with more accuracy by watching the eggs until they begin to hatch in good numbers. If spraying is made too early the larvae hatching later may go up to the tip which has grown out since the spray and thus escape from eating the poison. On the other hand the spraying should not be delayed too long because the larvae can do a great amount of damage in a short time and the larger ones are much harder to kill. With each 50 gallons of bordeaux use one or two pounds of paris green, three to five pounds of arsenate of lead or two quarts of arsenite of soda solution, which can be made according to the formula:

White arsenic	1 pound
Sal soda (washing soda)	4 pounds
Water	1 gallon

Boil the mixture until the arsenic is all dissolved — 15 or 20 minutes.

Flea-beetles

There are several species of flea-beetles which feed on the young potato plants. Of these the most widely known is the potato or cucumber flea-beetle (*Epitrix cucumeris* Harris). Two other members of the same genus, the tobacco flea-beetle (*Epitrix parvula* Fab.) and the egg-plant flea beetle (*Epitrix fuscata* Cr.) are known as potato pests farther south. In this state a larger, more elongated flea-beetle (*Systema hudsonias* Forst.) has been found quite troublesome.

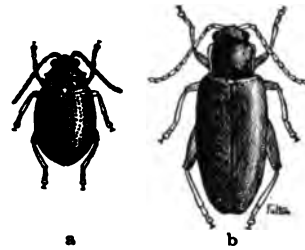


FIG. 204.— TWO COMMON POTATO FLEA BEETLES. *Epitrix cucumeris* (a) and *Systema hudsonias* (b).

The life history and habits of all the above species are similar and the methods of control the same. The adult beetles hibernate during the winter under leaves and rubbish, and in early spring come out and lay eggs on the roots of weeds belonging to some family of plants as the potato. The larvae mine into the roots; when full grown they pupate and later emerge as adult flea-beetles. There are two or three generations in a year.

The injury to the potatoes is caused by the adult beetles, which attack the plants when they are only a few inches high and eat numerous small, round holes in the leaves. The beetles stay mostly on the under sides of the leaves, and their presence is best detected by their work. The larvae occasionally do injury by mining into the tubers and causing pimply potatoes.

Control.—The remedies recommended for the Colorado potato-beetle will also partly control the flea-beetles. Bordeaux acts as an excellent repellent for them, but since they usually feed on the under sides of the leaves and do not eat through the upper epidermis, they find many parts of the leaves which have not been touched by the spray. This emphasizes the need of thorough spraying so as to cover as much of the plant as possible. When the flea-beetles attack the plants very early it may be deemed advisable to give the young plants an application of bordeaux earlier than is recommended for the Colorado potato-beetle. The

feeding of the flea-beetles also contributes to the injury known as tip burn.

It is advisable to keep the farm cleared of all weeds of the potato family (*Solanaceae*) on which the flea-beetles breed. These include nightshade, horse nettle, bitter-sweet or blue bind weed, ground cherry, jimson weed and others.

Blister-Beetles (Epicauta and Macrobasis)

There are several species of blister-beetles which sometime become numerous enough to be injurious. These were well known long before the Colorado potato-beetle became important and are called "old-fashioned potato-bugs." They are all medium sized, elongated beetles, and the various species are differently colored. One of the most common is striped; others are light or dark gray, black or spotted.

While the adults may do some damage in eating the plants, the larvae of these insects are decidedly beneficial in destroying the egg masses of grasshoppers. The female deposits a large number of eggs in a small cavity in the ground. The young hatching from these are provided with legs and crawl about until they find a grasshopper's egg mass. They feed on the eggs and at the first molt their legs become rudimentary and they complete the remainder of their larval development as helpless grubs surrounded by an abundance of food. There is one brood a year.

Control.—The blister-beetles are not apt to be troublesome on plants that have been regularly sprayed. If they appear suddenly in large numbers as sometimes happens, a prompt application of an arsenical is advisable.

The Three-lined Leaf-beetle (Lema trilineata Oliv)

This insect is like the Colorado potato-beetle in that both the larvae and adults feed on the leaves. The beetle is smaller, more elongated, and has only three black lines on a yellow ground color. The larva is distinguished by having its back covered with its own excrement. There are two broods each year. The beetles come out in spring and lay their eggs on the underside of the leaves along the veins. The larvae of the first brood appear in June

and those of the second brood in August. The adults of the second brood hibernate over winter.

Control.—This insect is easily controlled by an application of one of the arsenicals, and is regularly destroyed by the same spray that is made for the Colorado potato-beetle.

Tortoise-beetles (Cassida and Coptocycla)

A few species of small green, gold, or black beetles of the above genera are sometimes found feeding on potato leaves but are of minor importance. They are broadly oval in shape and the flaring edges of the thorax and wing covers give some resemblance to a tortoise shell. They are not injurious in regularly sprayed plantings.

INSECTS SUCKING THE LEAVES AND TIPS

The Potato Plant-louse (Macrosiphum solanifolii Ashm.)

In occasional years potatoes suffer from the attack of large numbers of plant lice or aphids. They are very small, soft-bodied insects of a yellowish-green color and they cluster in large numbers on the stem, leaf and blossom stalks. They begin to appear in destructive numbers about the first of August, and when conditions are favorable to their increase they cause serious injury by killing the tips for a distance of four to six inches. The period of severest attack is over by the middle of September. A severe outbreak of this insect occurred in the northern part of this state in 1908. In most years it is kept under control by natural checks, such as rainy weather, predacious and parasitic insects and parasitic fungi.

The full life history* has not been definitely worked out, but it is known that the lice come to the potatoes about the middle of July from some other plant. They develop wings and leave about the middle of September. The eggs, in which stage the winter is passed, are fastened to shepherd's purse, and possibly other weeds.

Control.—The contact insecticides, such as tobacco extract, soap and kerosene emulsion will kill these insects, but in view of their rapid increase and short time in which they occur on potatoes in destructive numbers it hardly seems practical to make such an

* Patch, Maine, Agricultural Experiment Station Bulletin 147.

application. Since it is known that the eggs are fastened to weeds, fall plowing and the burning over grassy or weedy places near the potato field would be advisable in sections where this insect is abundant. The wounds made by the beaks of the plant lice render the plant more susceptible to diseases and increases the need of thorough spraying with bordeaux.

Leaf-hoppers

Leaf-hoppers when numerous do some injury to the tops both by sucking the juices and in making wounds which facilitate the entrance of fungus and bacterial diseases. The species found most common on potatoes in this section is *Empoasca mali* Le Baron. This is a small, elongate, pale-green insect which is very active and can jump or fly readily. They have never been destructive enough to require a special treatment.

INSECTS BORING IN THE STALK

The Potato Stalk Weevil (Trichobaris trinotata Say.)

The larvae of this insect bore into the stalks and do considerable damage in a great many sections. It is most numerous in states south of New York, but it may become occasionally destructive in the southern portions of this state.

The adults are small, ash-gray beetles with a long snout. They appear in spring and eat holes in the base of the stalk with the mouth and deposit an egg in each. Small white grubs hatch from these and bore into the main stalk and branches. Near the middle of August when the grubs are full grown, they form cocoons near the base of the stalk and pupate. They mature a few weeks later but the adults remain in the stalk until the following spring.

Control.—The best remedy is to rake up the stalks in fall and burn them, thus destroying the hibernating beetles. Since this insect also feeds on jimson weed, horse nettle and other *Solanaceae*, such weeds should be kept cut.

The Stalk Borer (Papaipema nitella Gn.)

This is a gray moth, the larvae of which bore into the stems of potato and a great variety of plants, including tomato, corn, cotton,

grasses and numerous weeds. The potato is probably not its normal food plant, but when the weeds are destroyed it attacks whatever is available.

The eggs are laid in fall on grasses and weeds in masses of fifty or sixty. The larva first mines the leaves and then works down into the stalk. They frequently leave one plant and migrate to another. When mature the larva eats a hole in the side of the stalk and pupates. Adults emerge late in August. There is only one generation each year.

Control.—Since this insect lives on such a large number of weeds, the best method of control is clean cultivation. Infested weeds which have been cut should be destroyed to prevent the larvae from migrating. Large numbers of parasites live on the larvae and kill so many that it is seldom destructive.

INSECTS AFFECTING THE TUBERS

White Grubs and Wireworms

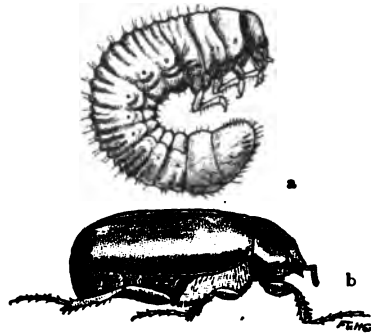


FIG. 205.—WHITE GRUB (A) AND MAY BEETLE (B).

The white grubs are the large, soft-bodied larvae of May-beetles or June-bugs. They feed on the roots of numerous plants and sometimes eat into the tubers of the potato, especially in newly-plowed sod ground.

The eggs are usually laid in sod ground in June and hatch in about two weeks. The grubs feed on the roots and require two summers to become full grown.

They pass the first winter deep in the ground. The second-year grubs are larger and more destructive than the first, so that land left in sod one year is apt to be badly infested the second year. Sometimes in June or July of the second year the grub pupates and in about three weeks becomes an adult beetle, but remains in the ground until the following spring. There is but one brood every three years, but all stages may be found in the ground each year.

Wireworms are the long, hard, cylindrical larvae of the click beetles. There are a number of common species with similar habits and appearance. Like the white grubs, they normally live in sod ground and feed on roots, and generally are not injurious to potatoes unless the ground has been in sod a year or two before.

The life history is very much like that of the white grubs. The eggs are laid on sod ground and the larvae require from three to five years to mature. They transform to adults under ground in midsummer, but usually remain in the soil until the following spring.

Control.—Since the white grubs and wireworms have very similar life histories, the methods for their control are about the same. A rotation of crops is the best method to prevent their increase, and ground that has been in sod should be followed for a year or two with buckwheat or other small grains not seriously injured by them. Infested ground should be plowed in late summer or early fall and thoroughly harrowed in fall and early spring.

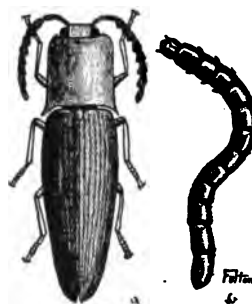


FIG. 206.—CLICK BEETLE (A) AND WIREWORM (B).

POTATO DISEASES IN NEW YORK STATE

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At least ten diseases occur on potatoes in New York State, though fortunately not all are serious ones.

Late blight and rot is the most destructive disease, but it occurs in epidemic form in wet years only, though it persists without doing much harm through dry seasons. It causes a blackening and dying of the foliage and sometimes the stems, and a dry rot of the tubers.

It is caused by a fungus, *Phytophthora infestans*, which lives over winter in a more or less dormant condition as a threadlike growth in the decayed areas of affected tubers. When such tubers are planted the fungus continues its growth into the sprouts and produces its fruiting bodies as a mildewy growth on stems above ground. The spores formed here are easily blown about, some of them falling on potato foliage. If moisture is present they germinate and enter the leaf tissue causing the blight above described. On the under surface of the blighted leaf more mildew appears upon which are formed myriads of spores that are scattered to other vines and infect them. Spores that fall on wet soil are carried down into it and coming into contact with the new tubers enter them and produce the rot.

Infection of foliage and tubers takes place only during periods of rainy or exceedingly moist weather and this should be taken into consideration in attempting to control the disease. To prevent tubers from rotting, the vines must be kept from blighting. As vines can become infected from spores carried from adjoining fields, spraying is the only practicable means of control. The vines should be sprayed with bordeaux, 5-5-50 strength, from the time they are eight inches high until growth ceases in the fall.

Early blight, caused by the fungus *Macrosporium solani* is a typical leaf spot of the foliage, the spots having concentric rings like a target board. These spots may become very numerous and run together so that the leaves die of blight. In case the attack is

early the tubers are small, and in any case the crop light. Spraying with bordeaux, as recommended for late blight, will control this disease.

Tip burn is a name applied to the dry, brittle, and blackened condition of the tips of the leaves though the dead areas may extend around the margins. It is sometimes called dry weather blight. It is a physiological trouble, due to excessive loss of water from foliage during dry weather, particularly when this follows a warm, wet period. Frequent sprayings with bordeaux is reported to have reduced this disease, especially when the soil has been frequently stirred by shallow cultivation to conserve soil moisture.

Scab is a disease caused by a soil bacterium, *Streptothrix scabies*, that produces a roughened, scabby, or pitted condition on the surface of the tuber. The diseased area may be slight or may involve the entire surface. The parasite causing this disease is able to live for several years in the soil especially if it be in an alkaline condition, and to live on the affected tuber over winter. Select tubers as scab-free as possible for seed. Treat two hours in a solution of formaldehyde made by diluting one pint of 40 per cent. formaldehyde in thirty gallons water or one and one-half hours in corrosive sublimate solution made by dissolving 4 ounces powdered corrosive sublimate in 30 gallons water. Plant treated tubers in land that is free from scab or that has not been planted to potatoes for several years. Where it is necessary to apply lime for other crops, this should be done immediately after digging the tubers. Lime in any form, wood ashes, and manure from animals fed scabby tubers should not be applied to potato soil.

Fusarium wilt is a disease affecting the sap carrying vessels of the plant, discoloring them, and rendering them incapable of performing their functions, thus causing the vines to wilt. The disease can be recognized in the tubers if when a cut is made across the stem end, a dark ring of diseased sap vessels from a quarter to a half inch below the surface of the skin is observed around the slice.

A dry, wrinkled, sunken rot of the tubers beginning where they have been wounded is reported to be due to a species of *Fusarium*

and is called "Fusarium dry rot." All affected tubers should be rigidly excluded for seed purposes and rotation of crops should be practiced.

Other and perhaps less serious diseases of the potato are (a) *Rhizoctonia*, forming numerous small black bodies or scurf on the surface of tubers, cankers on stems below ground and sometimes the formation of small potatoes on stems above ground; (b) *black leg*, a disease appearing as a blackening and withering of the lower portion of stalk, and dying of the vines, and sometimes a decay of the tuber; (c) *silver scurf* showing as dark areas containing minute black pimples on surface of tubers, which later shrivel and take on a silvery appearance; (d) *internal brown rot* characterized by dry brown spots scattered throughout the flesh of tuber, a disease associated with an improper distribution of water in the tuber during some period of its growth; (e) *pimply potatoes* caused by minute worms called "eelworms" or "menatodes" producing pimply or knotty conditions of the tuber.

A serious disease known as *leaf roll* occurs in some western states as well as in Europe. The disease, as the name indicates, is caused by an upward rolling of the leaf blade upon the midrib and also by the foliage changing to an unhealthy yellow color often tinged with purple or red.

Two foreign diseases,—one the *powdery scab*, in which the scab spots upon maturity become powdery, being quite different from the common scab, and the other the *potato wart* in which case irregular warty excrescences are found on the tubers, sometimes entirely destroying them,—are liable to be introduced into this country and perhaps already have. As there is no known way of controlling them, growers should report any suspicious cases. The strict quarantine of all European potatoes from infested areas will now prevent such diseased tubers from being shipped into this country and introduced into our soil.

CONTROL MEASURES

As soil organisms parasitic upon potatoes are readily introduced into the soil through successive plantings, it is highly important that a rotation of crops be practiced, potatoes appearing once in

three or four years, with a meadow crop intervening. Where destructive soil troubles are present a much wider rotation with potatoes is necessary.

The seed selected for planting should be as free as possible from disease and injuries of all kinds. It is highly desirable to select seed from fields known to produce perfectly healthy plants. If on cultivating the tubers the *Fusarium* wilt appears common, the entire stock from the same source should be discarded for seed purposes. As a precaution against scab and black leg the seed should be treated before cutting, by soaking for two hours in a solution of formaldehyde made by diluting one pint of 40 per cent. formaldehyde in 30 gallons of water, or one and one-half hours in a solution of corrosive sublimate made by dissolving 4 ounces of the poison in 30 gallons of water. Probably the corrosive sublimate solution is the more desirable to use as it destroys not only scab but also the black leg organisms and the sclerotia of *Rhizoctonia* on the tubers. It must be frequently renewed, however, as it loses strength rapidly with use, and care should be taken that the solution and the tubers treated in it are not consumed by farm animals.

The plants should be thoroughly sprayed with bordeaux mixture 5-5-50 from the time they are eight inches high until growth has ceased. About 40 gallons of the mixture per acre is sufficient for the first application but the amount should be increased as the vines become larger. A fog should be made of the mixture as it comes from the nozzle if thorough work is to be accomplished. In dry seasons, applications made once in two weeks is sufficient, but in wet weather they must be made oftener. It is important that the spraying be done before rainy periods set in. One should not hesitate to spray in the fall even though it is necessary to drive over the spreading vines in the row to do so. Although blights are not troublesome during dry seasons, it has been shown by repeated experiments conducted by the New York Agricultural Experiment Station at Geneva that spraying during such seasons more than pays for the expense involved. When potato bugs appear add either 2 pounds paris green, 4 pounds arsenate of lead paste, 2 pounds arsenite of zinc, or 2 quarts of arsenite of soda to 50 gallons of bordeaux mixture.

SPRAYING

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Heavy losses result from the ravages of blight, rot, "bugs" and flea beetles. There are several kinds of potato blight. The three principal forms occurring in New York are early blight, late blight and tip burn. Early blight is a fungus disease which attacks only the tops. Late blight, also, is a fungus disease which is most destructive in wet seasons. This kind of blight is often followed by tuber rot resulting from fungus spores which

fall from the blighted leaves onto the ground and are carried down through the soil to the tubers by the agency of rain. Tip burn is a dry weather trouble in which the tips and margins of the leaves turn brown and die. The destructive "bugs," or Colorado beetles, are too well known to require description. Flea beetles are small, black, jumping beetles which gnaw numerous small holes in the leaves.

For all of the above troubles spraying with bordeaux mixture containing an insecticide is the best method of control. Spraying is of so much importance that it should never be omitted. It is one of the necessary operations in the culture of potatoes, particularly late potatoes. Bordeaux mixture prevents late blight, checks early blight, lessens the loss from rot, greatly reduces the ravages of flea beetles, prevents paris green injury, assists in the control of bugs, partially controls tip burn, stimulates the plants and increases the yield.

That spraying with bordeaux mixture is highly profitable is shown by the results of experiments made by the New York Agricultural Experiment Station. During nine consecutive years the Station, in cooperation with farmers, conducted potato spraying experiments in which an account was kept of the expense of



FIG. 207.— A GOOD AND A POOR HORSE-POWER SPRAYER.

spraying and the returns from it. In all, 114 such experiments were made. The average increase in yield due to spraying was 36.1 bushels per acre; the average expense of spraying, \$4.74 per acre; and the average net profit, \$14.43 per acre. It is believed that the average net profit from spraying would have been considerably larger had it been properly done in all of the experi-



FIG. 208.—SPRAYING POTATOES WITH A KNAPSACK SPRAYER.

ments. Horse-power sprayers were used in these experiments. By very thorough spraying, such as may be done with hand sprayers, much larger gains may be obtained. In the so-called "ten-year experiments" on the Experiment Station farm at Geneva five to seven thorough sprayings with a knapsack sprayer increased the average yield 97.5 bushels per acre.



FIG. 209.—FARMER'S EXPERIMENT AT WEST HENRIETTA IN 1904.
FROM SPRAYING, 130 BUSHELS PER ACRE.



FIG. 210.—SPRAYER USED IN THE WEST HENRIETTA EXPERIMENT.

Spraying should be commenced with the appearance of the first brood of "bugs" which is, usually, when the plants are six to eight inches high. Subsequent applications should be made at intervals of ten to fourteen days in order to keep the plants well covered with bordeaux throughout the season. During epidemics of blight it may be advisable to spray as often as once a week. Usually, about six applications will be required. The bordeaux should contain four pounds of copper sulphate to each fifty gallons in the first two sprayings and six pounds in subsequent sprayings. Whenever "bugs" or flea beetles are plentiful add one or two pounds of paris green, two quarts of arsenite of soda stock solution or three to five pounds of arsenate of lead to the quantity of bordeaux required to spray an acre.

The arsenite of soda stock solution is prepared by boiling together (for about twenty minutes) one pound of white arsenic and four pounds of sal soda in one gallon of water. This makes a cheap, effective poison; but it should be used only with bordeaux mixture. Used in any other way it burns the foliage.

None of the ready-made bordeaux mixtures on the market are as good as the homemade. Neither can the lime-sulphur solution be profitably substituted for bordeaux in spraying potatoes. It dwarfs the plants and lowers the yield.

The kind of sprayer which it is best to use depends chiefly on the acreage to be sprayed. For gardens and fields of less than one acre a four-gallon compressed air sprayer or a knapsack sprayer is the proper thing. On fields of a few acres one may use a spray pump mounted in a barrel which is drawn through the field in a light wagon. The pump should be supplied with two long leads of hose. A man standing in the wagon pumps and drives while two other men, walking, direct the spray nozzles, covering several rows at each passage through the field. Though expensive, this method of spraying is profitable because of the thoroughness with which the work can be done. For fields of ten or more acres a power sprayer of some kind is required. There are on the market several kinds of good horse-power sprayers. Small gasoline engines, also, are used.

Thoroughness of application is to be desired at all times, but is especially important when flea beetles are numerous or the



FIG. 211.— POTATO SPRAYING EXPERIMENT AT GENEVA IN 1904. ACRE YIELDS (LEFT TO RIGHT): 380 BUSHELS, 161 BUSHELS AND 350 BUSHELS.

weather favorable to late blight. The more frequently and thoroughly the plants are sprayed the better. There is no danger of injuring the foliage by too much spraying. Using the same quantity of bordeaux, frequent light applications are likely to be more effective than heavier applications at long intervals; for example, when a horse-power sprayer carrying a single nozzle per row is used, it is better to go over the plants once a week than to make a double spraying once in two weeks. In the first two sprayings, while the plants are small, one nozzle per row may be sufficient; but when the plants become large at least two nozzles per row should be used. Large vines are especially liable to blight and should be sprayed very thoroughly. Such vines may be somewhat injured by the wheels of the sprayer, but the benefit from spraying will far outweigh the damage done.

A single spraying is better than none and will usually be profitable, but more are better. Spraying may prove highly profitable even though the blight is only partially prevented; it is unsafe to postpone it until blight appears. For the best results, spraying should be continued as long as the plants live, and it is a mistake to discontinue because the weather is dry and no late blight present. A late attack of blight may result in heavy loss from rot. As a rule, those who spray most obtain the largest net profit.



FIG. 212.—LOW NOZZLE TRACTION SPRAYER.

ESSENTIALS IN MARKETING

R. H. COOPER, RIVERHEAD, N. Y.

General Manager, Long Island Potato Exchange



For the past few years there has been a great deal of talk about the "High Cost of Living" and the "Middleman's Large Profits," until it has reached the point that the average farmer and consumer believes the "middleman" is the actual cause of high prices, while in reality the farmer and the consumer are probably as much to blame as the middleman.

The subject has not been gone into deep enough, and the root of the trouble has not been reached by simply showing the difference between the selling prices of the farmer and the cost to the consumer. There is a much more vital question to consider, and that is, "What makes this great difference in price necessary?"

Before trying to answer that question let us see what the conditions are as they stand today, employing "potatoes" as a subject to work on, they being the staple article of food in this and most countries.

In the first place, the housewife sends to the corner grocer for potatoes, and instead of ordering a peck or more will buy a two quart basket at,—say twenty cents. When she gets the potatoes home she finds some too small for use and possibly others showing some rot or bruise, making a few unfit for use, and thereby adding still more to the cost of the potatoes that had not been taken into consideration as it did not appear on the face of the bill. Let the housewife demand "quality," and that will be the first step towards reducing the cost of living.

Twenty cents for two quarts of potatoes, the staple food of the "common people," certainly seems like an outrageous price, yet when you stop to consider that there are three or four grocery and fruit stores in about every block in Greater New York, all

of which must make a living, it stands to reason that with several stores to supply a small area which could be handled by one, they must get together and charge high prices for staples, in order to pay the expense of delivering small packages on which there is only a fraction of a cent profit. Very often it costs more for a grocer to deliver a package than the profit amounts to. He must make up that loss somewhere, and as he can not do it on standard packages, such as clothes pins and breakfast foods, he has to make his profits from bulk goods, such as potatoes.

The large profits are made by the retail and not the wholesale dealers who are the distributors between the farmer and the retailer, and who are erroneously dubbed "The Middlemen." The "middleman" — which really includes the retailer — is usually considered by the unthinking public to be a man, ready and willing at all times to do the farmer, while in reality he is a very necessary factor in this great game of chance. The railroads, with their exorbitant freight and demurrage rates, have as much to do with the high cost of living as anyone. The profits derived by the commission houses and wholesale dealers, however, is larger than it should be in a great many cases, and a part of this is due to crooked methods that can only be overcome by regulation. The Cole Commission Law is regulating this, to some extent, by trying to hold down the crooks in the commission game, but that will only take care of a small part of the trouble. We will have to have methods in marketing that will not give opportunities for the crooks to work on.

There are too many retail grocery stores and fruit stands. Competition, as a rule, is the life of trade, but in this case there is so much of it that it is necessary to charge exorbitant prices in order to make so many places pay, while a less number of places could do a profitable business at prices within the reach of all.

Regulate the number of retail stores within a certain district so that such high prices need not be charged, and you have the second step towards reducing the cost of living.

As stated before, we must have the middleman, and what is more, most reasonable thinking farmers agree to this fact. How much show would an inexperienced farmer have, if he should try

to market his crops direct to the consumer? The question is not hard to answer. There have been a great many attempts made along these lines, one just recently in Brooklyn in connection with the Housewife's League, but all have gone down as miserable failures. The reasons for these failures are numerous, but one in particular is the lack of interest shown by the housewife, who does not want to travel a mile or two to a market, and who is not to be blamed when she can have a grocer call at her house for her order and deliver the goods. Therefore, we must have this "terrible middleman" as the best medium for the marketing of crops, and if the agitators for lowering the cost of living would give their time and money towards helping to regulate and systematize the art of marketing, more good would be done towards reducing the cost of living, than by continually knocking the middleman.

There should be a national vegetable exchange organized to regulate prices and shipments, which would prevent markets from becoming glutted and carload after carload of produce from going to waste, as happens every year. Stop all of this waste and you have another step towards reducing the cost of living. If there is a over-supply of vegetables in the country, then they should be kept on the farm and used for fertilizer, rather than shipped into the city yards to rot and be carted to the dumps, adding more expense to the shipper, receiver and consumer, which in the end goes back at the farmer.

Think of the loss sustained every year by the farmer and shipper through the unscrupulous dealers in our produce yards, who make it a practice to buy heavily on high markets in order that they may turn down the cars upon arrival, on account of a lower market or through some pretense or another, and then either buy them in again themselves, at a great reduction in price, or have their pals do it for them. This loss, in the end, is borne by the consumer, and some form of regulation should be arranged whereby such underhand dealers as well as crooked shippers could be held in their places and not allowed to ruin markets and upset trade in general.

The Long Island Potato Exchange was organized in 1908, not to try to control the market nor to set prices, but to try to reg-

ulate shipments and prices by working in league with the dealers in and around Brooklyn and New York, but, until within the past year or two, it met with little or no success simply because the motive was misunderstood and the workings of the exchange misrepresented to the trade by some of the independent shippers who were trying to feather their own nests at the expense of others, and who did not have the interest of the farmer nor the public at heart.

The exchange work on Long Island, however, is only a local matter and can not expect to, nor does it intend to try to stop the evils of the produce business that are countrywide. As stated before what we need is a national association. It should be organized in New York City, and from there spread to other cities. This would have a controlling influence over the farmer, the shipper, the broker and the receiver.

We have well organized exchanges controlling the marketing of wheat, oats, corn and other grains, as well as cotton, oil, etc., which settle their differences by a board of adjusters; therefore, what is to prevent an exchange being organized to control the marketing of the four staple vegetables, namely potatoes, cabbage, onions and turnips, under one head? Stop to consider what a grand thing it would be for all those who are trying to do an honest business. Roughly outlined, the plan would be as follows:

First of all have an exchange well organized and incorporated along the lines of the New York Produce Exchange, with able and experienced men for officers and directors and a careful and hard working manager whose motto would be, "succeed or die in the traces." Appoint a board of adjusters experienced in the handling of the various lines controlled by the exchange, to settle disputes; then enroll as members, at a membership fee with yearly dues, all shippers, brokers and receivers ready to comply with the rulings of the exchange.

The benefits derived from such an organization would be innumerable, a few of which are as follows:

Four blackboards would be maintained, one for each of the staples, on which would appear the names of the different shippers, and each morning the shippers having offerings would send a telegram to the exchange, giving his products and prices desired,

which would be placed after his name on the board, giving all the brokers and receivers who had "seats" on the floor an opportunity to buy what they wanted without going to the expense of telegraphing so many shippers for prices. Then again, the shipper would save this same expense in being obliged only to wire his offerings to the one place. It would be a ruling of the exchange that the shippers should deal only through brokers and dealers listed as members of the exchange, and vice versa. It would be a further ruling that shippers and brokers should not sell to dealers black-listed by the exchange as undesirable to the best interests of the trade. Such ruling would also apply to "short weight" shippers and those who make a practice of sending cars of poor produce to the market. The exchange could then put a stop to the practice of turning down cars on dropping markets, as well as satisfactorily adjust the shipments of poor cars, etc., and the ruling of the exchange would be final.

Such an exchange, well managed, would have the effect, not only of holding down crooked dealers, but by working in league with similar exchanges in the principal cities could control conditions, so that by daily notifying the shippers of the existing situation, there would be no glutted markets, trade would be steadier and losses less, enabling business to be done on a smaller profit than at present, with the result that the consumer would be benefited, and another step towards reducing the cost of living would be accomplished.

It seems strange, when everybody is working for the same end — namely that of bettering conditions for all — that there will be people who will call such a proposition as the above a "pipe dream," still there will be some who will uphold and others who will oppose it. Such an organization, however, must and will be brought into existence before very long, and with proper support it will succeed. It will mean work and fight, but any deed worth accomplishing is worth working and fighting for. It will require the support of some of the big dealers and shippers, men of influence, to make the undertaking a success, but as quite a few of the dealers have expressed their opinions in favor of such an exchange, it may not be a hard proposition to start the ball rolling, especially as broker, shipper, receiver and jobber will be benefited.

Such an exchange could also use influence in bringing about changes in legislation, as well as changes in transportation, heater-car service, etc., that would be beneficial to shipper as well as dealers. In fact, a thousand and one things could be put under control and conducted in an honest, business-like way, that are now run with no head or tail.

Nearly all grain sold in bulk is inspected and weighed by government inspectors and certificates of weights and grades of cars sent with each invoice, so that the buyer knows what he is getting, and any shipper who tries to be crooked has to answer to Uncle Sam. If such a thing can be done with grain, why can it not be done with potatoes and other staples? Automatic scales could be installed at different points of the railroad hauling such produce, and a running weight taken when the cars go into the country light, and the weights and car numbers sent to the inspector of that section so that he could "tare" each car properly when loaded.

The trade today is demanding such a move as this, and nothing can right conditions but an exchange that will be impartial in its rulings. Small organizations in different sections will never answer the purpose. It will have to be done along the lines suggested herein; and what is more, it can and will be done.

SUCCESSFUL COOPERATIVE MARKETING

W. H. INGLING, FREEHOLD, N. J.

General Manager, Monmouth County Farmers Exchange

The Monmouth County Farmers Exchange is a cooperative association organized and incorporated under the laws of New Jersey March 3, 1908, for the purpose of marketing the principal products of the 1,275 farmers who compose its membership.

It is capitalized at \$100,000, 20,000 shares at a par value of \$5 each.

It operates a territory of possibly 500 square miles in central New Jersey extending through the counties of Monmouth, Middlesex, Mercer, and parts of Ocean and Burlington counties.

This section is one of the largest producing centers of farm products in the state, and the output of the Exchange for 1913 was over 2,600 carloads consisting for the most part of Irish potatoes, though apples, pears, asparagus, berries, melons, sweet corn, pickles and other miscellaneous crops were included.

In addition to its activities in selling the products of its members it is also deeply interested in buying their seed potatoes, grass seed, all insecticides and fungicides, hampers, barrels, lime, manure and other needful goods, and manufacturing their fertilizers from the purest and highest grades of chemicals that are to be procured, thus insuring to the farmer a pure fertilizer without adulteration or filler of any kind and one that builds up the soil of his farm and produces better results every year, because every pound of material that enters into its composition is the best of plant food. Beside this it saves the grower in price from three to six dollars per ton. This branch of the business is becoming of great value to the members and increases every year.

The general supervision of the entire business is under the direction of the board of fifteen directors who are elected annually by the stockholders.

The administration of the details of the business is left to the general manager who is appointed by the board of directors. The system followed in conducting this immense business is a simple one and has proven very effective.

The Exchange has thirty shipping points that extend thirty miles west from the general office situated at Freehold, N. J., along the lines of the Pennsylvania Railroad and twenty miles east along the Central Railroad of New Jersey. All of these stations are connected with the general office by telephone. During the shipping season an agent-inspector is in charge of all shipments and inspection at each loading station and is appointed by the board of directors each year.

The shipping season begins with asparagus the latter part of April continuing with the various crops until about July 15 when the heavier shipments of white potatoes begin and continue until near October 1, when the last of the crops have been marketed.

The members deliver their potatoes or other products to the agent-inspector at the several stations and are given a receipt for them showing gross, tare and net weight. The products are then loaded into the cars for shipment according to their grade by the agent, who reports to the general office at the close of each day the details of his day's work. The local agent keeps in close touch with the general office by telephone throughout the day and informs the manager the probable extent of his loading. At 5 o'clock, the shipping hour, the agent notifies the manager by telephone what cars are loaded and ready to be shipped and receives his billing directions.

The manager and his assistant in the meantime have issued their quotations by telephone or telegraph to all of the salesmen of the Exchange and to the principal wholesale jobbers and dealers in all the markets east of the Mississippi river where there is a demand for the Exchange goods. The quotations are based on the supply and demand of the large markets, information from these markets being received daily from representatives of the Exchange located in these centers as to the conditions prevailing and the possible offerings and supplies received from other producing sections.

By the close telephone communication with our loading stations and the direct connection with our salesmen and wholesale buyers throughout the country maintained by telephone and telegraph, we have the necessary information to form a conclusion as to the proper quotation to make to secure the highest market price.

The greater part of the output is sold f. o. b. loading station,

the exceptions being ungraded goods and miscellaneous shipments of small vegetables and fruits which are sent to our selling agents to be sold on commission. The expenses are met by a small percentage withheld on the general sales.

When the business of the day is over the prices obtained are averaged and the farmer is credited with the average price for the same grade and variety of goods no matter where they may have been loaded. The bills of lading are sent to the general office in order that the invoices and drafts may be sent out the same night. The price is given to each agent every morning for the goods shipped the day before, and the agent notifies the growers.

Some of the advantages that have been obtained for our membership by cooperation are:

1. A forecast of the crops in the different producing sections of the country that has proven of great value to the Exchange in placing their products in the best markets.

2. Distribution at primary points to many consuming centers rather than congestion in a few is one of the most valuable results. Under the old system the producer sold to the local dealer who sold to his jobber and he became the distributor. The exchange plan takes the profit of the local receiver and jobber and puts it in the hands of the farmer.

3. Knowledge of markets from day to day during the shipping season enables the Exchange to place its products where the most active demand and the highest prices are found, thus maintaining values and preventing to some extent at least, the violent fluctuations of markets that are so prevalent where indiscriminate shipments are made.

4. By grouping the products of several hundred growers in any section and handling them through a cooperative organization of their own, commands the attention of the largest trade in all parts of the country and thereby widens the markets and increases the price.

5. Cooperation encourages the growing of a higher quality of fruits and vegetables and putting them on the market in uniform packages and a standard pack and grade. When this is fully accomplished, farm products can be put on the market under

a registered brand of the organization that will bring a better price and create a demand for the goods that will be largely in excess of present shipments and greatly to the profit of the producer.

6. Cooperative action enables the grower to make his sales f. o. b. shipping point in all of the markets of the United States and Canada and places in his hand the power to control the rate of dispersal to any and all of them, and thus he predetermines the destination of his products, thereby preventing depressions of the markets by unwise distribution and untimely shipments.

7. Cooperatively the grower is in a much more advantageous position to secure the regulation of railroad rates and increased transportation facilities than if he worked independently.

Having been in business six years we have a fair basis on which to show just what a cooperative organization honestly conducted may accomplish for the producers of farm products.

Beginning business in July, 1908, with a paid-in capital of \$7,000 and a membership of 300, our first year's trade amounted to \$454,414.11. It has increased in volume every year until the present time, and for 1913 amounts to \$1,053,256.16 with a net profit of \$15,485.55. It has paid a dividend of 5 per cent. for four years and for 1913 paid 6 per cent. The first year there was no dividend declared.

Taking the six years since our organization, we have done a total business of \$5,374,004.25 at an average expense of 1.82 per cent. and have paid to our members for their potatoes an average price of 60½ cents per bushel or \$1.66½ per barrel of 165 pounds. For the sake of comparison we have gone over the records for the six years previous to the organization of the Exchange from 1902 to 1907 inclusive and find the average price paid the farmer for potatoes was only 42½ cents per bushel or \$1.16½ per barrel, a difference of 50 cents per barrel or 18 cents per bushel in favor of cooperative marketing. In addition to the advantage in higher prices for their crops the value of farm lands have increased from \$100 and \$150 per acre to \$250 and \$300 per acre.

We have handled in the six years 13,990 careloads of products.

Total shipments of potatoes, bushels.....	5,914,307
Total shipments of apples and pears, bushels...	177,270

Total shipments of asparagus, bunches.....	1,098,286
Total shipments of miscellaneous, packages....	47,381
Total sales of seed potatoes, bushels.....	355,388
Total sales of fertilizers, 5 years, tons.....	15,592
Total amount of business.....	\$5,374,004.25

We have not only sold the products of our members but are manufacturing for them from the best materials that can be purchased, a pure fertilizer of the highest quality, without a filler of any description. The evidence of quality and value of our goods is shown in the results obtained by every one who uses them, and this evidence is greatly strengthened and confirmed by the State Experiment Station in its last report. The Station value is given for our 4-8-10 analysis, as \$30.33 per ton exclusive of bags and mixing costs, and places our product as the highest of any given in the bulletin, when the price for which it is sold, \$30 per ton, is taken into consideration. To win this position for our brand of fertilizers in four years, we think, is an attainment worth while. If these results are true, and they must be as they are taken from the records, our organization has profited our members on potatoes alone \$1,075,328 and on fertilizers to the extent of \$57,776, a total of \$1,133,104.

Our financial standing at the close of business on November 30, 1913, was:

Capital stock	\$75,450 00
Surplus and undivided profits.....	34,087 52
Total	<u>\$109,537 52</u>

We have brought about this magnificent result by using directly all of the markets to be found, by reaching out our arms 1,300 miles away, along the Gulf of Mexico, in the valleys of the Mississippi, through the cotton fields of the South, over the plains of the Middle West, on the shores of the Great lakes, through the waters of Hampton Roads, along the coast of the Atlantic Ocean, beyond the rock-ribbed coast of Maine, and returning through the manufacturing centers of the eastern states brought with them a steady flow of dollars, hundreds, thousands, yes millions of dollars for the pockets of our membership.

CORTLAND COUNTY POTATO GROWERS' ASSOCIATION

E. H. FORRISTALL, CORTLAND, N. Y.

Agriculturist, Cortland County, N. Y.

From practical experience and observation, I see the necessity or more thorough knowledge of potato growing by the New York State farmers, especially along the line of seed growing and selection of which there is an ever increasing demand. The potato can very properly be one of the crops grown in the rotation on a dairy farm, and it is a crop that can safely be relied on, when planted on our pastures that need cultivation, new life and re-seeding. As an industry, it will be a long time before our average yield per acre will reach that of European countries. Nor is it essential at present. When a demand is made on our farmers for any product and at a price that they can raise this product, then and only then, speaking in a broad sense, will there be increased production per acre. Nevertheless, we are making advances along the line of production due to the untiring efforts of the departments of agriculture and experimental stations, and the attention of the seed potato grower is constantly being drawn to the fact that quality must always be foremost in the requirements of seed potato production.

New York State ought to lead in the production of seed stock. It should be a matter of common interest to individual farmers or organized associations to cooperate in producing a seed stock that will meet the demands of the large producers for our city markets, also attract the attention of the southern truck growers. Such seed stock will, from necessity, have to be the varieties best adapted to those localities, and true to name.

Other influencing factors will be the preparation of seed bed, fertilization, treatment of seed for the prevention of diseases, cultivation, spraying, hill selection for increased production, and proper storage facilities.

Spraying with bordeaux mixture for early and late blight will produce a better crop. The quality of the potato is materially in-

creased when the plant is carried to maturity. The blight, if allowed to attack that part of the plant above ground, cuts off the crop in proportion to its premature development. Therefore, spraying is an insurance for better crop and against loss by decay.

By hill selection we mean the digging of each hill separately, and selecting for seed only those having the larger number of medium-sized tubers.

As to storage, seed stock should be dry when stored and kept in a dark, cool, well-ventilated place.

Cortland County is rapidly realizing the growing demand for seed potatoes and has organized an association to develop a seed market, with the following constitution and by-laws:

ARTICLE I

Name

The name of this Association shall be the Cortland County Potato Growers' Association.

ARTICLE II

Any potato grower may become a member of this association by first paying a membership fee of one dollar and adhering to the constitution and by-laws.

ARTICLE III

Object

1. To encourage the cooperation of potato growers for the protection and advancement to their common interests.
2. To grow varieties true to name.
3. To encourage the growing of only those varieties that are best adapted to our soil and trade.
4. To develop in those varieties the highest qualities for seed purposes.
5. To develop a seed potato market.

ARTICLE IV

Officers

1. The officers of this association shall consist of a President, Vice-President, Secretary-Treasurer, and Auditor.

2. These officers shall constitute the Board of Directors.
3. The Board of Directors may appoint a local inspector.

ARTICLE V

Seven members constitute a quorum.

ARTICLE VI

The annual meeting shall occur in January.

By-Laws

ARTICLE I

Duties of Officers

1. It shall be the duty of the President to preside at all regular and special meetings and shall call special meetings when requested to do so by the Board of Directors or three members.
2. The Vice-President shall perform the duties of the President in his absence or incapacity.
3. The Secretary-Treasurer shall keep the minutes of the Board of Directors and also the minutes of the meetings of the association, together with membership fees and such moneys as are due the association. He shall report delinquencies of such payments.
4. The Auditor shall go over the accounts of the Secretary-Treasurer twice each year and report at the next meeting.
5. The duty of the local inspector shall be to inspect operations of members of this association with special reference to treatment of seed, fertilization, cultivation, spraying, and proper grading for sale.
6. The Board of Directors may make contracts in advance when asked to do so by individual members.
7. It shall be obligatory on the part of all members to treat all seed before planting when such seed shows signs of the presence of diseases or scab.
8. It shall be obligatory on the part of members to spray with bordeaux mixture at such time and manner as local inspector deems necessary.
9. It shall be the duty of the Board of Directors to carry such advertisements as advisable to obtain new markets.

10. One and one-half per cent. of all sales shall go to the association to defray expenses.

11. The farm bureau agrees to assist in finding new markets.

12. Members may sell through local markets, if in their judgment and circumstances, it seems best.

13. These by-laws may be amended by two-thirds vote of the association.

14. It shall be obligatory on the part of members to assume a number, the same to be recorded with the Secretary-Treasurer and stamped on all bags of seed potatoes shipped.

We are giving below fourteen reasons why Cortland County potatoes are to be preferred for seed purposes:

1. Because Cortland County Potato Growers are organized

2. Because of the superior quality of the potatoes grown

3. Because they are true to name

4. Because the varieties grown are what the market demands

5. Because these potatoes are grown free from scab

6. Because potato fields are sprayed with bordeaux mixture

7. Because these potatoes are grown free from blight

8. Because we have an average rainfall of over forty inches

9. Because potatoes will be properly graded

10. Because the Potato Growers' Association is backed by a well organized farm bureau

11. Because the farm bureau agent inspects the work from planting to shipping

12. Because Cortland County is on a main line of the Delaware, Lackawanna and Western Railroad and Lehigh Valley Railroad, with low freight rates

13. Because our shipments will reach you quicker

14. Because all shipments are inspected

Your patronage is solicited. Quotations given on application.

POTATO MACHINERY

C. R. WHITE, IONIA, N. Y.

Potato Grower and Farmers' Institute Lecturer



In recent years potato machinery has become a very important factor in growing potatoes on a commercial scale. In every line of potato machinery there are many different makes, varying somewhat in the manner of operation. It is hardly necessary in this article to place very much importance on the machinery for plowing, fitting and tillage because the same implements used for other crops are well adapted to these purposes in potato growing. It is important, however, that the plow be of a type which sets the furrow on edge rather than turns it flat. The cutaway harrow is an essential tool not only for fitting the soil after plowing but for cutting the sod before turning.

POTATO PLANTERS

Of the special potato machinery the potato planter, of which there are two distinct types, fills a place of great importance.



FIG. 213.—“TWO-MAN” POTATO PLANTER.

[1147]

There are several makes of self-feeding machines which carry the seed from the hopper to the potato tube working automatically. The claims made in favor of this type of machine is that it requires but one man to operate and will work with seed more variable in size than will that which is known as the "two-man" machine. The latter, however, is more certain to drop the seed regular. With this type one man drives the team and the other watches the planting which is done either by a chain conveyor or revolving wheels through which the seed passes as it is carried before the operator. If there are vacant places the seed is supplied and if there is more than one piece it is removed from the conveyor.

With both machines the furrow is opened by a plow. Fertilizer may be delivered from a hopper and a second furrower mixes the fertilizer with the soil and cleans the furrow for the seed which is delivered at regular intervals, varying from ten to thirty inches as desired, plating at any depth and placing the seed in moist soil

so that it does not come in contact with dry soil or the fertilizer. These machines are all very valuable and each has its loyal supporters among prominent growers.



FIG. 214.— LOW WHEEL RIDING CULTIVATOR.

TILLAGE TOOLS

The tillage tools consist of the light smoothing harrow and weeder for surface cultivation and the riding and walking cultivator of which there are many makes

SPRAYING MACHINES

The potato spraying machinery which is becoming very important in combating insects and diseases consists of a number of

makes of power sprayers carrying tanks which will hold from fifty to a hundred gallons and operated by the traction from the machine as it is drawn through the field. The pumps are high power and usually made of brass or brass lined so as not to easily corrode, and are capable of supplying the spray materials for four to six rows. They should carry a pressure of a hundred to a hundred and fifty pounds. The cost ranges from seventy-five to one hundred and twenty dollars.

In purchasing spraying machines there are several points which the grower should scrutinize very carefully. The tank should always be of wood because bordeaux mixture will soon eat out an iron tank, and it is better that all pipes and connections should be of brass. The working parts of the machine should be simple and substantial, it should be guaranteed to carry at least one hundred and fifty pounds of pressure and the nozzles should be set so that all parts of the vines will be thoroughly covered with a fine mist.

POTATO DIGGERS

Digging machinery consists of several styles of construction ranging from plows of different shapes which throw the hills of potatoes over onto rods or chains which separate the potatoes from



FIG. 215.—LOW-DOWN POTATO DIGGER.

the soil. Under reasonably favorable conditions such machines or plows are of assistance but are of little use on a large scale.

There are two distinct types of machine diggers — the low-down or shaker digger and the elevator machine. Each type in turn is constructed in a number of variations by the numerous manufacturers. The low-down machine consists of an axle mounted on a pair of wheels, resembling mowing machine wheels, upon which is hung a frame supporting a flat pointed steel blade. This runs under the potatoes and as the potatoes and earth are forced over the blade they fall upon shakers, the most simple being similar to the tines of a fork and the motion up and down. In other machines the shaker is longer and gives a double shake both up and down and lengthwise. The latter have a much greater power of separation than the former and will handle a much larger amount of earth.

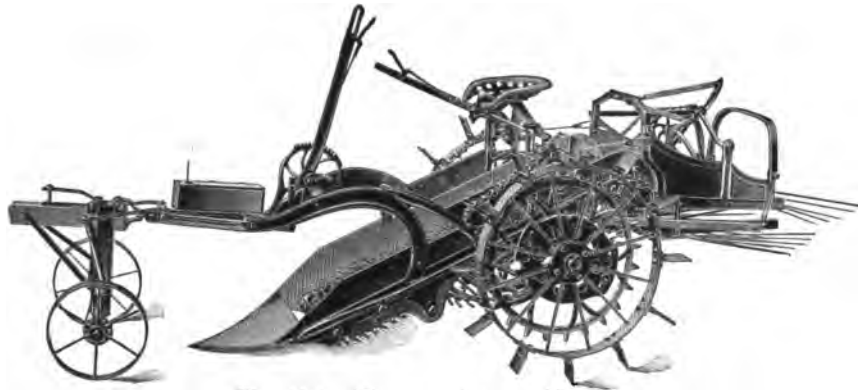


FIG. 216.—ELEVATED POTATO DIGGER.

The elevator digger is similar to the other except the wheels are usually larger, and as the earth passes over the blade or shovel, it is conveyed upwards and backwards by a chain or slat riddle which is shaken so the earth will crumble and run through while the potatoes are carried over. In this kind of digger the main difference is in the size and capacity of the machine, the method of delivery over the back, and the motion. In some cases the potatoes fall directly from the elevator to the ground, rubbish and all; while others have a rear shaker upon which everything which is carried over falls and is again sifted out, so that the potatoes are better separated and are delivered in a more narrow and compact row. Some machines have vine rods which push the loose vines and rubbish from the side of the row as it is delivered and

still some run the potatoes into crates which are set off by hand; or if the crate is not used the potatoes are caught in an iron box, which is dumped at intervals, leaving the potatoes in piles.



FIG. 217.—POTATO DIGGER IN ACTION.

With this wide range, growers have a large field to select from. The only caution which I could advise would be to see that the machines are made of good material, strong and durable, and be sure when buying to get a machine of sufficient capacity to do the work under adverse conditions. Many machines will do good work when potatoes are planted shallow or when the ground is dry that are utter failures with deep planted potatoes or when the ground is wet or grassy.

POTATO GRADERS

The other important machine which is to be considered is the potato grader, and with improved methods of marketing this machine is bound to become of great importance. There are three or four types: The slat machine, over which the tubers are run or pushed, the dirt and small potatoes dropping through between the slats; the barrel machine, which consists of a cylinder revolved by means of a crank, the outer covering of the cylinder being made of narrow slats separated so the dirt and small tubers will fall through. The cylinder is mounted on a slight incline, so that when it is revolved and the potatoes are shoveled into the upper end, the tubers which are too large to pass between the slats are worked along and drop out at the lower end. This machine is valuable where a person is so unfortunate as to have sprouted potatoes, as it will both break off the sprouts and separate them from the potatoes. A third style of grader, and the one which will have to be depended on when potatoes are to be graded

into different sizes, is the ring grader. It consists of a chain belt, so made that almost the whole belt consists of round holes. The machines are made in several styles, the most simple with just one belt to take out the small tubers, the second has a second belt with larger holes onto which the tubers drop from the first and so on to any number, so the tubers may be graded into as many sizes as may be desired.

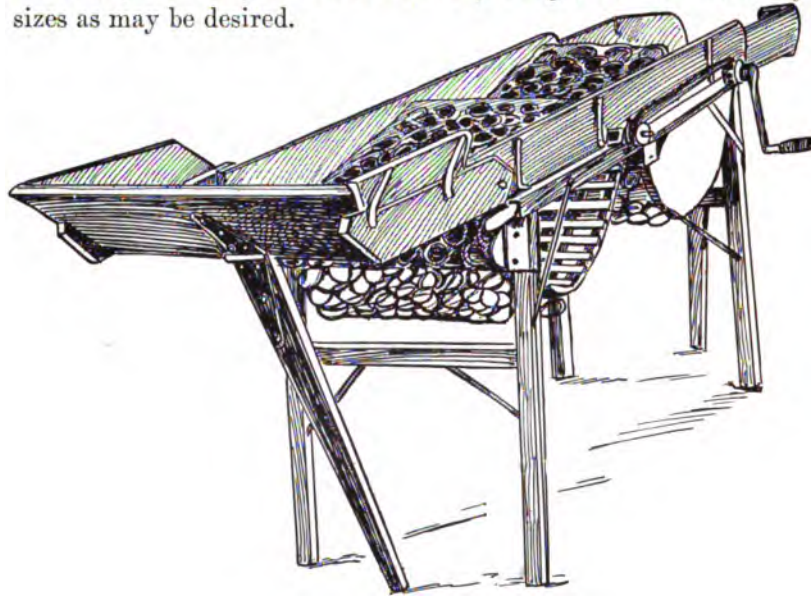


FIG. 218.—POTATO GRADER.

This kind of machine is destined to revolutionize potato marketing, for potatoes as well as apples will sooner or later be graded in size to suit the consumer.



FIG. 219.—POTATO COVER AND HILLER.

The several illustrations in connection with this article are only designed to show different types of the several machines and not to illustrate any particular make of machinery.

POTATO GROWING ON LONG ISLAND

H. R. TALMAGE, RIVERHEAD, N. Y.

President, Long Island Potato Exchange



For many years the Long Island potato has held a place all its own in the Greater New York market. This is due to two reasons, the first of which is that the Long Island potato always cooks dry and mealy and does not turn dark when cold, and the other reason is that the Long Island grower sorts his potatoes well, probably better than those from any other section coming to the same market. While the consumer has to pay from 25 to 33 per cent. more for these potatoes, they are probably just as economical for use in private families as any other, considering the better quality and freedom from waste.

Suffolk County, in which is located the most important producing section of Long Island, is fourth in number of acres in this state but considering the greater average yield per acre and the increased price per bushel, the total value of the crop is as great if not greater than any other county in the state.

The important potato producing section of Suffolk county is the extreme east end consisting of two narrow strips of fertile land between the Atlantic ocean and Long Island Sound and divided by Peconic Bay. Testimony that this is a prosperous territory is furnished in the fact that the two strongest rural savings banks in the state are located here, beside many commercial banks.

The soil is a sandy loam underlaid at a depth of two and a half or three feet with sand and gravel which gives perfect underdrainage. With this kind of soil and drainage it is possible to work the land very early in the spring and very soon after heavy rains. The land is level and free from stones and as we keep *but* very few cattle there are practically no fences, and it can

readily be seen that we can use all the modern labor saving machinery to good advantage, where the size of the farms will warrant. But very few farms have an area of 100 acres under cultivation, by far the greater number running from 30 to 50 acres.

About one-half of the cultivated land on each farm is in potatoes each year and we believe that we have about reached the limit of production so far as acreage is concerned. A definite rotation is not followed by all our farmers, circumstances making changes each year, but in a general way potatoes follow cauliflower, brussels sprouts, lima beans, corn, etc. Potatoes will be planted two years and in some cases three or four in succession on the same land, every crop being followed by a cover crop where possible. Rye is the most commonly used cover crop and all things considered is the most valuable. Under special conditions crimson clover, oats, barley and wheat are used to some extent. It is on these cover crops that we depend for our humus. While humus greatly helps in our farming in many ways, the lack of it does not seriously affect the texture as it would a clay soil. City stable manure on account of its prohibitive cost is but little used.

A high-grade fertilizer, principally a 4-8-7 or 5-8-7, is used at the rate of 1,500 to 2,000 pounds per acre. The tendency is rather to increase the amount used, not because it has been demonstrated that the crop needs more but because the growers feel they would rather use a surplus, thereby increasing the fertility of the land rather than to chance the crop failing to reach a maximum yield because of lack of fertilization. All fertilizer is used in the drill.

On the larger farms the plowing is done with a gang plow with a rotary harrow attached performing the two operations at once, three or four horses being used. About all the planting is done with picker planters, the rows being 34 inches apart and the pieces dropped 13 inches apart for early varieties and 15 to 17 inches apart for the late varieties.

The Irish Cobbler is raised principally for early, the Enohla also being a very promising new variety of early potato. The Green Mountain, Gold Coin, Norcross, Mills Prize, World's Fair

and potatoes of that type are raised exclusively for late crop. With our soil and climatic conditions the "blue sprout" potatoes such as the Sir Walter Raleigh do not do well as to yield and are of such inferior eating quality that we could sell them only at a discount.

We plant three to four inches deep, and harrow two or three times before the potatoes come up. As soon as the potatoes show so we can follow the rows we begin cultivating, going over them every week and following the cultivator with the weeder. We use the weeder until the potatoes are a foot high. We use the cultivator as long as we can get through without damaging the vines. We practice level culture and very little hand hoeing is required.

We plant as early as possible in the spring (often the latter part of March) in order that our crop may have the benefit of the cool weather and attain the greater part of their growth before the heat and drought of midsummer. In this respect we differ from the potato growers farther north who plant so as to make use of the rains and cool weather of the fall for their crop. About 10 per cent. of our crop is what might be termed "truck crop potatoes,"—that is early varieties dug as soon as they are large enough and before they ripen, and the land used for a second crop. These early potatoes are dug August first while the later crop is usually ready to begin harvesting about the middle of August or a little later.

Because our potatoes mature during the hot, dry weather of midsummer there is very rarely a year when there is any loss from late blight.

Usually our best market comes in after the New Jersey crop is nearly done, which is usually between September 1 and October 10, and before the Maine and up-state potatoes begin to come into the market freely. Previous to the year 1913, our farmers were inclined to sell only when the market was strong as they were always assured of a good market during the winter, from 20 to 25 per cent. of the crop going to market after December 1. Because of the removal of the duty on foreign potatoes we received for our 1913 crop a reduction of more than ten cents per bushel for our entire crop. As long as the present conditions

exist we will market our crop in the early fall regardless of the condition of the market, coming into competition with the New Jersey and southern Pennsylvania crops. There will be a small reduction in the acreage this year because of the removal of the duty and in the years to come a much greater reduction if, by this removal, the potatoes are made cheaper to the consumer. A greater diversification of crops will result which in the end will probably be to our advantage.

During the past six years the crop has been very largely marketed through a growers organization, the Long Island Potato Exchange. This organization not only markets the potatoes but also buys the fertilizer, seed and other supplies for its members. We have been told repeatedly by the city wholesalers to whom we sell our potatoes that the growers could "thank their association" for receiving at least 10 cents per bushel more for their potatoes than they would have received if it were not for the exchange. As we ship from two to three million bushels a year, in six years this has amounted to the sum of—say \$1,500,000—to which can safely be added \$500,000 saved to the farmers on their fertilizer, seed, feed, etc. Because of the advent of the exchange the speculators and local dealers have found their business much less profitable than formerly and are gradually dropping out one by one.

Had it not been for the assistance of the exchange to the growers many of them would have been hard pressed to pay their bills as we have had six unusually dry years with the natural result of a light crop.

With the constantly increasing value of land (from \$150 to \$300 per acre) and the steady increase in the cost of both man and horse labor and other things that enter into the cost of producing a crop, there can be no general reduction in the price our growers receive and still stay in business.

The following figures available from a large farm that annually raises 60 acres of potatoes shows the rather meager profits in the business. In the figures submitted there was no allowance made for a manager's salary, and several other crops grown showed no profit but were raised for the benefit of the land, also taking into consideration that on this large farm the efficiency of

labor and machinery was greater than on smaller farms, it can readily be seen that the business can not stand any reduction in the gross returns.

	Yield per acre.	Cost per acre.	Rec'd per acre.	Net profit per acre.
1909.....	166	\$59 00	\$100 00	\$41 00
1910.....	147	64 00	78 00	12 00
1911.....	139	67 00	107 00	40 00
1912.....	169	71 00	126 00	51 00
1913.....	113	75 00	71 00	+4 00
	<u> </u>	<u> </u>	<u> </u>	<u> </u>

† Loss,

THE POTATO SITUATION IN WESTERN NEW YORK

C. R. WHITE, IONIA, N. Y.

Potato Grower and Farmers' Institute Lecturer

A careful study of the potato industry in western New York with a view to observe not only the present condition but to review the past and look into the future, reveals the fact that if that large tract of country west of Syracuse in which the potato producing counties, Steuben, Monroe, Livingston, Ontario, Allegany (with a total area of 2,477,440 acres and total production of 80,463 bushels of potatoes) and several others of lesser production are to hold their prestige and increase their production to keep pace with the most progressive potato growing sections of the state and nation, some radical improvement must be made by the majority of the producers, not only in methods of growing the crop but in methods of soil improvement and maintenance. It does not require a very extensive survey to reveal the fact that the centers of heaviest production are constantly shifting. Many of the sections which gave heavy production twenty years ago have fallen to a very low production, while newer sections now hold the center of the stage and even some of these begin to show decline.

REASON FOR DECREASE IN PRODUCTION

A study as to the cause of the decline in production in these formerly high producing centers reveals the fact that too little attention was given to rotation or other methods of soil maintenance. These lands which are as a rule sandy or sandy loam are almost void of vegetable matter and on the rolling land the erosion has cut deeply into the slopes, the land in some few instances becoming worthless.

This tendency seems to prevail in the newer districts, and unless growers awaken to the fact that the amount of decaying vegetable matter in their soils will very largely determine the productivity of their lands, and take steps not only to maintain a large organic content but to increase it, there is prospect of a greater decline in yields.

IMPORTANCE OF SPRAYING FOR BLIGHT

Spraying potatoes for blight is only practiced by a small number of growers, and many who are attempting to take advantage

of the benefits which may be derived, are not well enough enlightened as to the history of the blight and its development to combat it with a full degree of success. The watchwords of success "earliness and thoroughness" are not understood.

Through the whole section there are some up-to-date growers who are giving object lessons of great value. There are a few in some of the older producing sections who are maintaining high yields, but the process of deterioration has gone far enough so that it will take some time to bring the average production back in keeping with the natural production of the lands in western New York.

SEED SELECTION AND QUALITY

There is some improvement in seed selection. Farmers are showing a greater interest in better seed and this will doubtless exert considerable influence toward better production.

The quality of potatoes are of the best but the methods of marketing has not been of a character to produce the best results.

In traveling over the entire state, I have found that the eating quality of the potato of western New York is equal to those of any other section, even Long Island or the states of New Jersey or Maine, but the methods of grading and loading have not placed western New York potatoes in the position to which they are entitled. The sooner growers awaken to this fact and take steps to rectify the abuses, the better it will be for the industry.

Summarizing, then, the condition of the potato industry in western New York, it is safe to say that while there are many up-to-date growers, the rank and file are not attaining nearly the profitable results which are within their reach.

The older producing areas need to adopt radical methods of soil improvement by the liberal use of legumes and other plants as cover crops and in rotation. The new areas should likewise adapt similar methods or lower yields are sure to follow.

With the very high quality of potatoes produced in western New York, better marketing methods which are sure to come and the awakening of producers as to the possibilities which are slowly but surely approaching, we feel sure that the outlook of the potato industry in this section is very bright and that in the future as in the past western New York will be recognized as one of the important producing sections of the country.

POTATO GROWING IN NORTHERN NEW YORK

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County Agriculturist, Clinton County, N. Y.

The potatoes grown in northern New York that reach the Boston, New York, Philadelphia and Baltimore markets are very largely grown in Clinton and Franklin counties. Although St. Lawrence, Jefferson and Essex counties produce considerable quantities of potatoes, the supply is not usually greater than the local demand. For this reason, this article will have to deal practically with the two counties, Franklin and Clinton.

The census figures of 1910 show that these two counties grew, in 1909, 15,946 acres of potatoes, yielding 2,758,802 bushels, making an average yield of 173 bushels per acre. When one stops to consider that the average yield in New York State is only 123 bushels per acre, it is readily seen that these two counties yield much larger than the average. This increased production is undoubtedly due to climatic and soil conditions rather than improved methods in tillage. Unlike some other portions of this state, potatoes have not become a special crop as yet in northern New York. They are grown, very largely, as a cash crop in connection with some other enterprise which is usually dairying. Very few farmers in this northern potato belt grow large acreage. Probably 90 per cent. of the potatoes grown here are grown on farms where less than ten acres are devoted to potatoes. In the sections of these two counties adapted to potatoes, practically every farmer grows from five hundred to fifteen hundred or two thousand bushels for sale. The farmer who plants more than ten acres is the exception rather than the average. To be sure, we have some farmers who are growing as high as five and eight thousand bushels of potatoes each year.

Most of the soil that is used for potatoes in these two counties is rather stony and the contour of the land is more or less irregular. For these reasons, modern potato machinery is not used to any great extent. I think the tendency is for the farmer, who can use machinery, to increase his acreage devoted to potatoes. In

the St. Lawrence valley, I find many farmers are now using potato planters and diggers, whereas in the hilly sections these implements are not used to any extent.

Practically all the potatoes are grown in the regular crop rotation. It is seldom that potatoes occupy the land more than one year in this rotation. Quite often they are the first crop to follow the land clearing. When this is done, very little fertilizer is used for the first few crops. Although most of the farmers realize the importance of a clover crop to turn under previous to the potato crop, very few have this favorable condition for the reason that most of the rotations are too long. The land being so rough and stony, the farmers are inclined to leave it to grass just as long as it will produce a moderate crop; thus the sod that is turned under previous to the potato crop is usually very poor. Were conditions right so that the farmer could use a clover sod previous to the potato crop, undoubtedly the yield could be increased very materially. Most of the potatoes are planted very shallow — not more than two inches — and instead of being planted in drills, as they are in most potato sections, the most of them are planted in the check system, three feet each way. Probably one reason for this method is the ease with which they may be dug. The digging seems to determine the number of acres that each man can grow. It is a common practice to cover the potatoes once or twice after they come above the ground, especially if the field is infected with knot-grass or other weeds. In this way the farmers are able to keep the weeds in control without any hand labor. Many of the better farmers are beginning to use the two-horse cultivators. These are used during the forepart of the season; later on when the vines are well grown the one-horse cultivator is used.

It is a common practice not to plant the potatoes until quite late in the season. In Clinton County, the first week in June seems to be the preferable time. The reason for this delay is twofold; the vines are less troubled with the common potato beetle and growth is prolonged to cooler months of the fall which insures a larger yield. Then too, when planted in this way, the crop fits in better with the corn crop that is used by the dairy. Very little blight occurs in this northern potato section. This is prob-

ably due to the cool air coming down from the mountain tops. Spraying for blight is not at all common.

Usually, there are not many of the potatoes marketed until they are all dug. The farmer being short of men, the usual custom is to dig the tubers and place them in the house cellars. Most of the potato buyers receive potatoes almost weekly during the entire winter. It is quite a common practice for the average farmer to sell a portion of his crop soon after digging and keep the balance to dispose of during the winter months. Most of the potatoes in those two counties are not bought by the bushel but rather so much for 62 pounds or 65 pounds as the case may be. This custom of taking 65 pounds for the common unit, I understand, was established a long time ago, when the potatoes were handled with ordinary shovels instead of potato forks. Because so much dirt was put in with the potatoes, the dealers demanded this extra five pounds.

Since the abolishing of the local starch factories, much more attention has been given to quality. The tubers that are now grown in this section are largely of the Green Mountain type. This variety seems to be a favorite in most of the eastern markets and it so happens that it is demanded by the Long Island and southern potato growers for seed purposes. Owing to the latitude and altitude of this section, it is very favorably located to produce high-class seed potatoes for southern potato growers.

Judging from the inquiries that have come from this section this year, the southern potato growers are beginning to realize the possibilities of this north country for their seed supply. We expect to be able to meet these demands through local seed potato growers associations. This new demand promises well to the potato industry of this north potato section.

THE POTATO AS A FOOD

IDA S. HARRINGTON, ROCHESTER, N. Y.

Farmers' Institute Lecturer



As the cost of living mounts higher and higher, housewives are learning that true economy in the purchase of foods depends on their ability to answer the following questions: "What kind of an investment am I making when I spend money in buying this, time and strength in preparing it, and digestive power in making it useful to my body? How can I prepare it in order to obtain the best possible return in food value?" The working out of these

problems seems hardest in connection with our most common foods, because with them familiarity has bred contempt; we have come to take them so much for granted, and our method of handling them has become so largely a habit, that we fail to study their possibilities as we should if our attention were turned to them for the first time.

If we studied a potato as though we had never seen one, in order to determine what it is made of, what value its ingredients have as a food, and by what principles of cookery that value could best be obtained, we should proceed somewhat as follows: We should scrub the potato clean, pare it, and allow it to stand in a bowl of cold water for a time, since one of our first questions regarding the digestibility of a food is, "Is it soluble or can it be made soluble?" When the potato has stood in the bowl of water for a time, a white insoluble powder is seen at the bottom of the bowl which we decide is starch. To prove this, we apply a drop of tincture of iodine. The powder takes on a blue color, showing that it consists of starch, and that the principles of starch cookery and of making starch soluble must govern our manner of preparing the potato.

Professor Atwater tells us, in his table on the composition of vegetables, that starch makes up about 14.7 per cent. of the potato

as purchased, and that in addition it is made up of 62.6 per cent. of water, 1.8 per cent. of protein, .1 per cent. of fat, .8 per cent. of ash, and 20 per cent. of refuse. It is plain, therefore, that the food value of a potato lies not in its power to build or repair body tissue (since it is only 1.8 per cent. protein) but in its ability to yield energy through containing 14.7 per cent. carbohydrate. When we fully understand that carbohydrates are our cheapest and best source of energy, and that the use of protein foods for this purpose is expensive and wasteful, we shall have taken a long step toward economical buying and cooking. Protein is necessary for the construction of our human engine, but carbohydrates must furnish the larger part of the fuel, both for immediate use and as a reserve fund for a "rainy day."

How does the potato compare with other starchy foods in food value? In the Cornell bulletin on "The Cost of Food," it has been carefully worked out: First, how much of a given food it takes to furnish sufficient energy for a day's average muscular work, and, second, how much energy various foods yield for ten cents. We find that potatoes at two cents a pound are a little more expensive as a source of energy than are rice, dried beans, or lima beans at ten cents a pound, but that potatoes give us a much better return for our money in mineral matter, such as lime, iron and phosphorus, than does rice. The potato is further valuable in adding bulk to the diet, an advantage that we can not afford to overlook. If the day should ever come when the concentrated food tablet, containing no waste, became the rule, our digestive organs would perish for lack of exercise.

PRINCIPLES OF PREPARATION

Whatever primitive man was able to do in regard to digesting starch in its raw form, we need today every help that careful cooking can furnish in order to get a full return from our starchy foods. We must make use either of long cooking at a moderate temperature,—as in boiling a potato,—in order to make the starch soluble, or of cooking at a temperature high enough,—as in baking a potato,—to change some of the starch into dextrine. An ideal boiled potato should be snowy white, dry, mealy, and

tender throughout, without being cooked to pieces. Scrub the potatoes clean and pare them *thin* if they are not to be boiled in their skins. We undoubtedly lose mineral matter, protein and starch through careless paring, not to mention the fact that it takes less time to pare a potato after boiling than before. The skin also protects the outer surface from being boiled to pieces. Unless potatoes are old and have lost much water through evaporation, they should not be left standing in cold water. We want to preserve every granule of starch for food, and that is impossible if the potatoes are soaked. Put the potatoes on in boiling salted water. Keep the water boiling steadily, but not so rapidly as to powder the outside of the potato before the inside is done. As soon as the potatoes are tender throughout (in from twenty to thirty minutes), remove the skins if they have been left on, drain the potatoes perfectly, cover loosely with a clean cloth to absorb the moisture, and set in the oven, with the door open, for five minutes to dry. If the potatoes are to be mashed, run them through a potato strainer or pound them with a potato masher until perfectly free from lumps, as soon as they are thoroughly drained. To eight potatoes, allow three level tablespoons of butter, one-half teaspoon of salt, and one-half cup of milk. Beat until light and fluffy. A perforated cake spoon is a good thing to use. Do not pack the mashed potato down in the serving dish but pile it irregularly, so as to keep all the lightness that has been beaten in. In baking potatoes we go a step farther in making the starch available for the human body. Instead of merely making the starch soluble, we apply a sufficiently strong heat to change starch to dextrine. It is the same result that we obtain when we brown the crust of our bread or brown flour for gravies. This change makes starch much more digestible, and hence we prefer a baked potato to a boiled one, in feeding a child or an invalid. In order to get the desired result, however, we must have a good brisk oven. If we bake a potato in a slow oven, we defeat our own ends. Such a potato is, if anything, less digestible than one which has been carefully boiled. Therefore, it is important to thoroughly scrub a potato with a vegetable brush before baking, not only as a sanitary necessity but because it aids the heat in penetrating quickly to the heart of the potato. A

moderate-sized potato should bake in about forty-five minutes, and is at its best as soon as it is tender clear through. Potatoes should be turned at least once during baking. When taking them from the oven, break the skin to let the steam out. Serve in an uncovered dish. The mealiest potato is made soggy by condensing steam.

Stuffed Potatoes

Cut well-baked potatoes in half lengthwise. Remove the pulp and prepare like mashed potato. Add a little finely chopped ham if liked as a seasoning. Return the mixture to the skins and brown in the oven.

French Fried Potatoes

Scrub, pare thin, and cut in eighths lengthwise. Let them remain in cold water only until all are ready; if left for an hour in cold water, much starch is lost. Drain between cloths. Fry in deep fat, hot enough so that a cube of bread will brown in it while you count fifty or sixty. This is the best temperature for frying any food that has not been previously cooked. Drain on brown paper, and sprinkle with salt. With a deep iron frying kettle, such as is used for doughnuts, and a wire frying basket, this is a simple and easy way of preparing potatoes.

Potato Yeast

One-half cup of sugar, two or three boiled potatoes, one-quarter cup of flour, one quart of potato water and one cake of yeast foam. Mix sugar and flour with the potatoes, add the boiling potato water, and, when lukewarm, the yeast dissolved in water. Let stand in a warm place twenty-four hours, stirring as it becomes light and frothy. Fill fruit jars half full with the mixture, and close tightly. Store in a cool place. Use one-half cup of yeast to a pint of liquid in setting bread over night.

USE OF LEFT-OVER POTATOES

Potato Stuffing for Poultry

Janet McKenzie Hill

“ Mix together two cups of mashed potato, one cup of soft bread crumbs, and from one-quarter to one-half cup of butter. Season

to taste with salt, pepper, summer savory or poultry seasoning, and add one beaten egg."

Cream of Potato Soup

Thin one cup of mashed potato with one cup of hot milk, and add to a cream sauce made of one quart of milk, four level tablespoons of butter, and four level tablespoons of flour. Season with pepper, salt, and chopped onion or onion salt. Simmer for half an hour, and thin with hot milk if desired.

Potato Pastry

Janet McKenzie Hill

"Two cups of flour, one-half cup of shortening, one-half teaspoon of salt, one cup of cold mashed potato, two teaspoons of baking powder and milk as needed. Sift together the flour, salt and baking powder. Work in the shortening with the tips of the fingers or a knife. Add the mashed potato, and milk enough to make a soft dough. Turn on to a floured board. Handle as little as possible. Pat and roll to fit the top of a dish filled with cooked and seasoned meat. The pastry should be one-quarter to three-eighths of an inch thick."

UNUSUAL USES FOR POTATOES

Potatoes as a Foundation for Candy

Mary Elizabeth Hall

"Cooked potato fondant. Boil or steam potatoes and force them through a fine sieve. With one-half cupful of potato, so prepared, mix thoroughly two cupfuls of sugar and thin with two-thirds of a cupful of milk. Place the mixture on an asbestos mat over the fire and cook until thick—to the sticking point. Pour the mass on a cold, damp marble and "cut in" like plain fondant. Knead small quantities at a time until the whole batch is smooth. Pack in tins lined with waxed paper. The fondant can be used without additional sugar and does not stick to the hands."

Potatoes as a Cleansing Agent

The Cornell bulletin on "The Laundry" describes the use of well-cooked potato mixtures as soap substitutes in washing delicate fabrics, and gives the following rule for potato water to be used in the laundry: "Grate two large-sized potatoes into one pint of clean, clear, soft water. Strain into one gallon of water. Let the liquid settle, pour off and use."

Raw potato, sliced thin, applied to a fresh ink stain on a carpet, and repeatedly renewed, will usually prove effective.

TABLE SHOWING TOTAL ACREAGE OF POTATOES AND NUMBER OF
BUSHELS PRODUCED IN NEW YORK STATE BY COUNTIES
(U. S. CENSUS, 1910.)

	Acres.	Busheles.
Albany	3,708	283,564
Allegany	13,412	1,631,123
Broome	7,106	708,114
Cattaraugus	7,392	879,253
Cayuga	8,089	1,037,829
Chautauqua	6,329	778,277
Chemung	3,724	370,110
Chenango	4,843	671,087
Clinton	8,673	1,325,041
Columbia	3,144	232,702
Cortland	4,961	750,187
Delaware	4,331	479,061
Dutchess	3,041	300,275
Erie	23,587	3,014,450
Essex	2,769	269,319
Franklin	7,273	1,433,761
Fulton	2,485	271,868
Genesee	9,585	1,217,791
Greene	1,948	160,133
Hamilton	419	46,324
Herkimer	4,167	520,121
Jefferson	5,319	789,027
Kings	591	57,728
Lewis	4,102	627,771
Livingston	11,163	1,438,699
Madison	4,566	619,283
Monroe	20,211	2,796,728
Montgomery	2,007	193,644
Nassau	8,685	1,168,369
New York	38	6,776
Niagara	6,918	663,192
Oneida	8,721	1,192,575
Onondaga	13,794	1,671,835
Ontario	14,857	1,642,755

	Acres.	Bushels.
Orange	3,063	288,341
Orleans	4,111	571,609
Oswego	7,507	997,874
Otsego	7,946	1,059,120
Putnam	863	85,494
Queens	2,581	391,804
Rensselaer	10,008	1,142,796
Richmond	139	13,798
Rockland	958	66,909
St. Lawrence	7,321	1,184,162
Saratoga	7,278	579,652
Schenectady	1,135	87,140
Schoharie	3,273	307,746
Schuyler	3,045	365,815
Seneca	2,833	290,310
Steuben	30,524	3,279,953
Suffolk	15,407	2,200,178
Sullivan	3,312	259,461
Tioga	5,960	729,523
Tompkins	4,908	689,360
Ulster	4,282	293,415
Warren	1,882	163,673
Washington	10,443	1,375,013
Wayne	9,280	1,049,202
Westchester	1,757	147,853
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Yates	2,667	235,657
State	394,319	48,597,701

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